MAY 9 1960

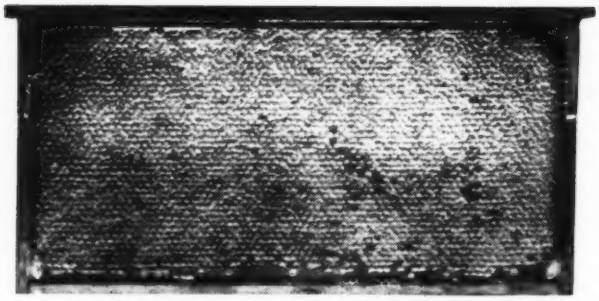
Gleanings in Bee Culture

B & Z LIBRARY

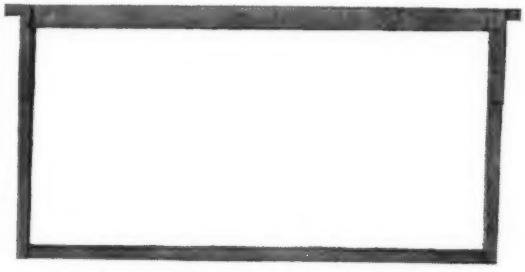
May 1960

OHIO STATE UNIVERSITY
MAY 5 1960
LIBRARY

A Beautiful Comb Deserves A Good Frame!



BE SURE YOUR FRAMES are Strong Enough to Withstand Constant Handling in the Bee Yard and the Honey House.



Nailless Topbar Brood Frame — Catalog No. 335

DADANT'S FRAMES are Accurately Made From Selected Lumber To Give Extra Strength At All Points Where Strength Is Needed.

It's always wise to have some extras on hand for emergencies!

SIZES AVAILABLE

9⅛" Brood Frames or Extracted
6¼" Frames Extracted or Chunk
5⅜" Frames Extracted or Chunk
4½" Frames Extracted or Chunk

STYLES AVAILABLE

Nailless Topbars
Wedge Topbars
Grooved Topbars

Take your choice, refer to our 1960 catalog for prices, and send your order to your nearest Dadant dealer or direct to any of our 7 distribution points.

DADANT & SONS, INC.
Hamilton, Illinois

BRANCHES:

Route 41, South
Hahira, Georgia

180-200 Canisteo
Hornell, New York

1010 W. Austin Street
Paris, Texas

721 West O'Connell St.
Watertown, Wisconsin

Stephenson Ave. at 14th St., Lynchburg, Virginia

Gleanings in Bee Culture

May, 1960 CONTENTS Vol. 88, No. 5

87 Years Continuous Publication by the Same Organization.

Monthly Honey Report ..... Walter Barth 261
Supersedure and Swarming ..... Dr. Mykola H. Haydak 265
Foulbrood Couldn't Lick Uncle Charley ..... J. L. Caton 270
Package Bees for Cut Comb Honey ..... Arnold H. Hilbert 272
Beekeepers are Friendly ..... Mrs. Rice J. Acrim 275
Spring Apiary Management ..... Kenneth E. Farner 277
Increase with Nuclei ..... Marvin W. Kosanke 281
"Bee-wildered" ..... Closson Scott 282
Price Support — 1960 283
Beekeeping Short Course ..... Fred C. Snyder 284
Research Review ..... Dr. Roger A. Morse 285
News Reel 286
Who's Who in Apiculture 288
Live and Learn ..... Propolis Pete 290
Let's Talk about Honey Plants ..... Dr. Harvey B. Lovell 291
We Learn By Our Mistakes ..... Harold Fleck 292
Cooky Raids Ahead ..... Mrs. Benj. Nielsen 293
Editorials 294
Caution in the Use of Chemicals, Drugs, and Antibiotics ..... Dr. C. L. Farrar 296
A Roll of Rubberoid ..... Milton H. Stricker 299
Talks to Beekeepers ..... M. J. Deyell 300
News and Events 303
Obituary 305
Cyclone Wipes Out Bee Yard ..... L. O'Connor 311

COVER PICTURE — There are many methods of hiving a swarm. Shaking the bees into a bushel basket, then emptying the basket at the hive entrance is quite common. When the queen goes into the entrance, the bees will follow. It seems to be a good idea to get a comb containing brood and honey from another hive, to put into the middle of the hive intended for the swarm. The bees are then likely to stay.

Subscription Rates: United States, Canada, Pan American countries, and Spain, one year, $2.50; two years, $4.50; three years, $6.00. Single copy, 25¢. Other countries, 50¢ per year additional for postage. Published monthly. Discontinuance: Subscriptions stopped on expiration. No subscriber will be run into debt by us for this journal. Change of Address: Give your old address as well as the new and write the name to which the journal has heretofore been addressed. Remittance should be sent by post office money order, bank draft, express money order or check. Contributions to Gleanings columns solicited. Stamps should be enclosed to insure return of manuscript to author if not printed. Advertising Rates: Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. Advertisers' Reliability: While the publishers do not guarantee advertisements in this journal they use utmost diligence to establish in advance the reliability of every advertiser using space in this journal.

Opinions expressed by the writers in these columns are not necessarily the opinions of the editors.

POSTMASTER: Send Form 3579 to 623 West Liberty Street, Medina, Ohio.

Second Class Postage paid at Medina, Ohio.

The A. I. Root Company, Publishers, Medina, Ohio
M. J. Deyell, Editor — Jack Happ, Managing Editor
Huber H. Root, and John Root, Associate Editors — Walter Barth, Field Editor

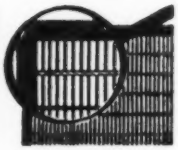
STOLLER'S
Frame Spacers

The Finest Thing Offered Beekeepers

From coast to coast, reports come in, of the merits these spacers perform.

STOLLER HONEY FARMS
LATTY, OHIO

Chrysler's Electric Welded All-Steel Queen Excluder



The only worthwhile Queen Excluder on the market

- Accurate spacing
- Allows maximum bee passage
- Better ventilation
- More honey production
- No wood. No burr combs
- No sharp edges to injure bees
- So durably made that it is permanently queen excluding and will last a life time.

We manufacture a full line of Bee Supplies. Order from our dealers or direct from our factory. Canadian-made goods are cheaper. No duty. Send for our price list. Always in the market for beeswax. Cash or trade.

W. A. Chrysler & Son
Chatham - Ontario - Canada

"The Australian Bee Journa!"
Published by the Victorian Apiarists' Association at the beginning of each month. Subscription 10/-per annum plus 2/6 postage to overseas countries.
Box 167, Rainbow, Victoria, Australia

HONEY WANTED
Cut Comb and Extracted
Advise what you have
T. W. BURLESON & SON
WAXAHACHIE, TEXAS

A
COMPLETE SERVICE
for
New York State
and Eastern Beekeepers
from
M. R. CARY CORPORATION
(Formerly A. I. Root Co., of Syracuse)
Syracuse, N. Y.

- **Root QUALITY Bee Supplies to help you get more honey**
- **A complete line of Glass and Tin Containers**
- **A ready market for your Honey and Beeswax at top prices**
- **Rendering service for your old combs and cappings**

A postal card request will bring you Root's complete catalog and our container price list. Orders shipped promptly. Reasonable prices. Send sample of honey, advising how much you have. Shipping tags for honey, wax, combs and cappings sent on request.

M. R. CARY CORPORATION
GPO Box 818
Syracuse 1, New York

For
Root QUALITY
Goods in MICHIGAN
It's
Prairie View Honey Co.
2 Blocks from the Expressway
Now Open to All Points
North and West
"Everything for the Beekeeper"
and plenty of FREE parking
for CASH-and-CARRY
CUSTOMERS
HONEY and BEESWAX
bought or traded
for supplies
Mail Orders Handled Promptly
PRAIRIE VIEW HONEY CO.
12303 12th St., Detroit 6, Mich.

LEAHY MFG. CO.	SUPERIOR HONEY CO.	WALLY'S BEE ENTERPRISE, INC.	A. I. ROOT CO.	WILLIAMS BROS. MFG. CO.
WALTER D. LEVERETTE APIARIES	A. G. WOODMAN CO.	HUBBARD APIARIES	ALBERTA HONEY PRODUCERS CO-OP.	MANITOBA CO-OP. HONEY PRODUCERS

EBY'S PERMANENT FOUNDATION

Patent Pending No. 791627

"MAKES WIRED FOUNDATION OBSOLETE"

MADE FROM PURE BEESWAX AND ALUMINUM ALLOY

CONTACT YOUR NEAREST DEALER TODAY FOR PRICES

FOUNDATION FACTS — As there is much interest relative to Aluminum Base Foundation, we believe some facts should be stated which we will endeavor to do at times through this column. As far back as 1874, the **idea** of a reinforced base comb foundation was recorded in France, and several times, later in the United States. Before anything can come into being or existence, an idea must occur. The idea is recorded in History for 86 years. The idea has lived for 86 years. It must be good. **That which deserves to live will live.** EBY'S PERMANENT FOUNDATION.

MFD. BY HYLAND APIARIES, INC., WEST ELKTON, OHIO

BEE CALM with TAYLOR'S HIVE-BOMB
The Push-Button Bee Smoker

$1.29 plus freight at your dealers

- No sparks
- No heat
- No fire hazard
- A puff's enough

***trademark, Stewart Taylor, Camargo, Ill.**

DO YOU KNOW?

We Render Cappings, Old Combs, and Slum-gum.

Rates are reasonable with a good job assured. Extra wax secured over ordinary beekeeper methods will often cover charges. See page 11 of our 1960 catalog for complete information. We are always in the market for beeswax, cash, trade, or to be worked into Bee Comb Foundation.

A. G. WOODMAN CO. **Grand Rapids 4, Michigan**

F. W. Jones & Son, Ltd., Bedford, Que., Can.

CANADA'S LARGEST BEEKEEPER SUPPLY MANUFACTURERS AND EXPORTERS

— Write for Catalog —

U. S. Shipments — Swanton, Vt.

WEST COAST DISTRIBUTOR

EBY'S PERMANENT FOUNDATION

This foundation is made from Pure Bee's wax with a special aluminum alloy in the center. It will not crack in cold weather or sag in hot weather. No wiring necessary. Fast assembly.

NEW TYPE VEIL

This style bee veil is made the same as the Alexander, except it is all cloth, with two steel hoops to keep away from your face. It is light weight, collapsible and will outwear wire screen. Price each, ... $1.00 POSTPAID.
Special price to dealers in lots of ten. Write for catalog.

WILLIAMS BROS. MFG. CO.

5205 S. E. 82nd Avenue Portland 66, Oregon

BEE SUPPLY CO.

1037 Commonwealth Avenue Boston 15, Mass.
Phone: Boston Liberty 2-4124
Supplying N.E. Beekeepers with A. I. Root products for over 50 years.
Boston Stock — Root Prices

25 cents for 8 - 9 oz.
of your honey in our plastic comb honey section
COBANA PROD. CO.
P.O. Box 214 Dearborn 1, Mich.

The New Zealand Beekeeper
The Quarterly Magazine of the National Beekeepers' Association of New Zealand. Better Beekeeping—Better Marketing. Subscription, 8 shillings per year, payable to
THE GENERAL SECRETARY
Box 19 Foxton, New Zealand

PACKAGE BEES AND QUEENS

Walker-Lee Co. Live Oak, Calif.

Package Bees "Italians" Queens

Never before have good packages and queens been so important. Serving those who demand the best.

— PRICES —	1-9	10-49	50 up
2 lb. pkg. with young laying queen	$4.50	$4.25	$4.00
3 lb. pkg. with young laying queen	5.50	5.25	5.00
4 lb. pkg. with young laying queen	6.50	6.25	6.00
Extra Queens	1.50	1.40	1.30

Shipments by Express, Parcel Post or your Truck — Quality Does Not Cost — It Pays

THE WILBANKS APIARIES Claxton, Georgia

HONEY
nation
agreemen
Cuba, ac
March
WEEK n
commerci
machiner
for honey
New Pro
FOLK
number t
is now r
product,
is a blen
vinegar.
followers
trouble o
gar. A c
Whether
doctrines
his activi
the honey
One thi
ernment
with Dr.
April 4th
any indic
Federal a
of HON
honey-and
promoted
remedy.
for abou
arthritis t
is now b
merce un
on the lab
to get the

Monthly HONEY Report

WALTER BARTH, Field Editor, San Antonio, Texas

HONEY APPEARED on the international scene with the recent trade agreement between East Germany and Cuba, according to a report in the March 19th issue of BUSINESS WEEK magazine. The signing of this commercial treaty will bring to Cuba machinery and equipment in exchange for honey and other Cuban products.

New Products

FOLK MEDICINE, the nation's number two best seller by Dr. Jarvis, is now responsible for a new honey product, HONEYGAR. HONEYGAR is a blend of honey and apple cider vinegar. Now it is possible for the followers of Dr. Jarvis to avoid the trouble of mixing the honey with vinegar. A one pint bottle sells for 89¢. Whether or not one agrees with the doctrines of Dr. Jarvis, all agree that his activities have created a boom for the honey market.

One thing is certain, the Federal government apparently doesn't quite agree with Dr. Jarvis, if the report in the April 4th issue of TIME magazine is any indication. In Albany, New York, Federal agents confiscated 5,247 cases of HONEYGAR. HONEYGAR, a honey-and-vinegar preparation, is being promoted as a traditional Vermont remedy. It is reported to be helpful for about 35 ailments ranging from arthritis to chickenpox. HONEYGAR is now banned from interstate commerce until specific instructions appear on the label telling how to use the mix to get the cures claimed.

New honey filled candies are out and here is a treat—a hard candy shell on the outside with liquid honey centers. Our industry specialist on honey varieties, Andre Prost, is handling distribution. Interested beekeepers can buy these honey candies from Andre Prost, Inc., 150 Front Street, New York 5, N. Y. While these candies come from Italy, news has come to me that an American candy maker is planning the production of a similar candy within a year.

Free Honey Advertising

Famous stage, TV, and movie star, Mary Martin of Peter Pan fame, gave honey a big boost through a public testimonial. When interviewed she stated that on matinee days she keeps up her performance with honey and cheese. Miss Martin pointed out that the honey gave her quick energy while the protein in the cheese made it last.

1959 Honey Crop Above Average

A total of 247,523,000 pounds of honey was produced in 1959, according to the U.S. Department of Agriculture. This was seven per cent less than in 1958, but eight per cent above the 1953-57 average. The decline from 1958 to 1959 was largely due to lower yield per colony of bees.....45.5 pounds per colony in 1959 compared with 49 pounds in 1953. The 1959 beeswax crop, at 4,417,000 pounds was down eight per cent from 1958, but four per cent more than average.

National Picture

In general retail honey prices have been good but occasionally low prices are advertised and used as a "loss leader," evidently to bring in store customers. Such a case was reported to us of a newspaper advertising a five pound jar at 89¢ and white comb honey at 39¢. But also there are almost unbelievably high prices some beekeepers get in some areas.

(Continued on page 311)

CONNEAUT

The Sixty for 1960

Choice of
Successful Jobbers

THE CONNEAUT CAN CO.
Conneaut, Ohio

No Matter What Your Interest

Whether you are a Commercial Beekeeper; a Sideline Beekeeper; or a Beginner Beekeeper,—you'll find what you want in ABJ. PLUS Science and Industry; Honey Plants; Meetings; Crops and Markets—AND your questions answered FREE.

Send for a sample copy.

American Bee Journal
HAMILTON, ILLINOIS

Keep

Gleanings

Coming

MAIL THIS
COUPON TODAY
OR—GIVE TO
A FRIEND

GLEANINGS IN BEE CULTURE:
Dept. E-2, Medina, Ohio

Yes! Enter my subscription to Gleanings for the period checked below:

☐ 1 yr. $2.50 ☐ 2 yrs. $4.50
☐ 3 yrs. $6.00

50c per year extra for foreign

Name .....

Street .....

City ..... State .....

☐ Remittance enclosed. ☐ Bill me.

THE LOTZ SECTION

FOR THE
FINEST
IN
Honey Sections

Everything
in
Bee Supplies

Satisfaction Guaranteed
Write
for
prices

August Lotz Co.
Boyd, Wisconsin

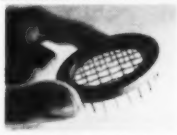
yours **FREE!**

Become the most successful organic gardener in your neighborhood! FREE BOOK shows you step-by-step how to turn waste products into life-giving soil, *without hours of back-breaking work.* Yours FREE as a new reader of *Organic Gardening & Farming Magazine.* Special Introductory Offer, 5 months for $1.00. Just pin a dollar bill to this ad, with your name and address. Your dollar cheerfully refunded if you aren't completely satisfied. Or we will bill you, if you prefer.

SEND TODAY! DEPT. GBC
ORGANIC GARDENING & FARMING
Emmaus, Pennsylvania

Get the BEST for LESS
CYPRESS BEE HIVES & BEEKEEPERS' SUPPLIES
Write for FREE Catalog
MYERS CRAFT MFG. CO. Burgaw, N. C.

We are the exclusive distributor for
Eby's Permanent Foundation
If you are west of the Mississippi River and are interested in beecoming a dealer, please contact us. We have a market for your honey and beeswax. Rendering is our specialty. Send us your cappings, slum gum, or old combs:
Wally's Bee Enterprise, Inc.
1909 East 4th Street Sioux City, Iowa
"Write for our 1960 Bee Supply Catalog."



Mark your Queens on the Comb without handling by using the new **MASTER Queen Marking Kit.**
Perfect results.
See your dealer or order direct
$2.40 complete
HUTCHISON MFG. CO. 2904 Colorado Ave. Santa Monica, Calif.

QUEENS PACKAGE BEES QUEENS
Two real good strains of Italian bees. Extra good honey gatherers and very gentle. Dadant's Starlines are bred for getting the honey and gentleness.

	2-lb.	3-lb.	4-lb.	Queens Starlines	Queens Reg. Stock
1 to 25	$4.50	$5.70	$6.80	$1.75	$1.45
25 to 100	4.24	5.45	6.55	1.65	1.35
100 up	4.00	5.20	6.30	1.55	1.25

For Starline Queens in packages, add 30¢ per package.
For P.P., add $1.50 per package of bees. Clip and Mark, 10¢ each.
Royal Jelly, fresh from the hive, $10.00 per ounce, post paid.
ALAMANCE BEE CO. Geo. E. Curtis & Sons LaBelle, Fla. Box 525

BEE SUPPLY CO.
Breakneck Hill Rd., Box 312 Southboro, Mass.
Phone: Marlboro Huntley 5-3136
Supplying N. E. Beekeepers with A. I. Root products for over 50 years.

YORK'S Quality Bred

Starlines Midnites Italians

The Strains Preferred by Leading Honey Producers

Pkgs. with Starline or Midnite Qns.

Quantity	1-24	25-99	100 up
2 lb.	$4.80	$4.55	$4.30
3 lb.	6.00	5.75	5.50
4 lb.	7.20	6.95	6.70
5 lb.	8.40	8.15	7.90
Extra Queens—Starline or Midnite	$1.75	$1.65	$1.55

Queens Clipped 10¢. Clip and Mark 15¢ each additional. TERMS: Small orders cash, larger orders $1.00 deposit oer package and balance two weeks prior to shipping date.

Pkgs. with Italian Queens

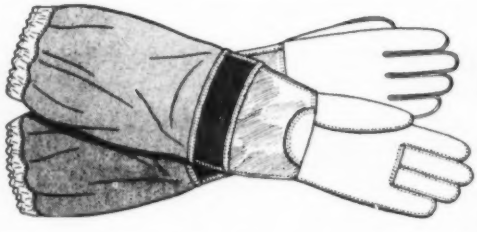
Quantity	1-24	25-99	100 up
2 lb.	$4.50	$4.25	$4.00
3 lb.	5.70	5.45	5.20
4 lb.	6.90	6.65	6.40
5 lb.	8.10	7.85	7.60
Extra Queens—Italian	$1.45	$1.35	$1.25

QUEENLESS packages — deduc' $1.00 per package; TESTED QUEENS — add $1.00 per package or queen.

YORK BEE COMPANY

Jesup, Ga.
412 W. Orange St.
P. O. Box 300
Ph: Garden 7-4131
(The Universal Apiaries)

FREE! If you have not received your copy of latest shipping information on parcel post, express, truck, and air freight shipments, write today. A copy will be sent by return mail.



THE BEST BEE GLOVE MADE

We do not merely copy, we attempt to improve or engineer superior products of bee equipment. These leather gloves are a good example of our success. The leather in the hands of these gloves is not just any leather that we can get at a bargain but the finest quality horse hide available. The leather is heavy enough so that the bees can not sting through and yet soft and pliable. Gloves to be sting proof must be nearly air proof, so years ago we started the manufacture of our ventilated gloves which were a big success right from the start—gloves that are sting proof and yet comfortable.

In our big 64-page catalog (the largest bee supply catalog published) we list these gloves and many other items not found in the other catalogs. Our prices are surprisingly low because we sell direct to you beekeepers and not through agents. Write for free catalog.

THE WALTER T. KELLEY CO., Clarkson, Ky.

Supersedure and Swarming

DR. MYKOLA H. HAYDAK

Department of Entomology and Economic Zoology, Institute of Agriculture, University of Minn., St. Paul, Minnesota

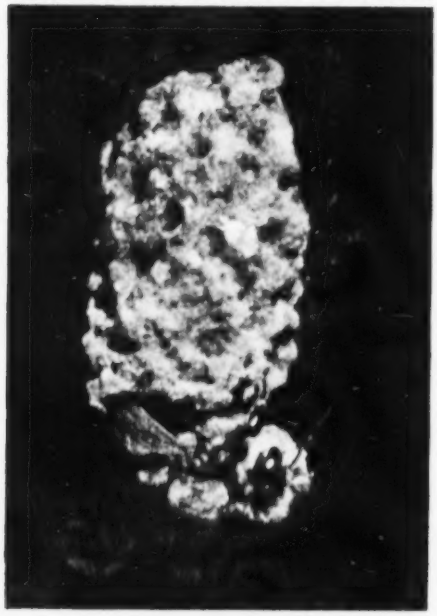
Paper No. 1049 Miscellaneous Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

Have you ever wondered why a colony of bees will raise a new queen even though they already have a queen? And have you wondered what takes place inside of a hive before a swarm issues or how a swarm locates a new home? This article will answer these questions for you.

BOTH SUPERSEDURE and swarming are important for the "rejuvenation" of honeybee colonies. In both cases a queenright colony rears a new queen. In supersedure, however, the old queen remains in the hive for some time working alongside her daughter; in swarming the old queen leaves the hive with a portion of adult bees before the new queen emerges and the latter alone remains in the colony. Quite often these phenomena coincide, and when supersedure happens during the swarming season it may result in swarming.

When superseding, bees usually build a few queen cells, of a not widely different age, constructed on the face of the comb mostly, each on a specially prepared wax base. In swarming there are many queen cells of different ages and they are usually located along the bottom edges of the combs.

A young virgin queen emerges from a supersedure cell to take over the duties of her mother.



Bees may supersede their queens for many reasons. About 88 per cent abnormal supersedure queens in packages can be attributed to the infection of the queen by Nosema (Farrar, 1948). It is thought that in a well established colony bees supersede their queen when the latter is failing or is injured. However, Butler (1957) gives another explanation. He demonstrated that every queen produces a certain substance which he called "queen substance". While licking their queen, bees obtain this substance and share it with other workers of the hive. This substance suppresses the queen rearing instinct in bees. When the bees do not get enough of this substance from their queen, they start building queen cells to rear a new one. To prove his point, Butler removed the daughter queen from the colony which superseded but where the mother queen was still present. The bees invariably started queen cells. However, when the mother queen was left with only about one fourth of the population of the original hive, the bees never tried to rear a new queen because there was enough queen substance produced by the mother queen to go around. When more bees were added to this hive, queen cells appeared. Thus Butler demonstrated that the worker bees supersede their queens when they do not produce enough queen substance to inhibit the bees from rearing further queens.

Swarming is a Bees Way of Reproduction by Colonies

The ability to swarm makes it possible for bees to maintain their kind in the world. By swarming, bees increase the number of colonies already existing and replace those that perish from adverse living conditions. By fitting together all pieces of information that we have now available in the beekeeping literature we can obtain a clearer picture of the processes that are connected with the phenomenon of swarming.

Early in the season the bees are found in a relatively compact cluster in the hive. As the season advances, the bees begin to occupy more and more space. At any given temperature there is a certain number of bees per unit area present on the combs with brood. Experiments of Taranov (1947) with marked bees have shown that bees up to three days of age remain on the brood comb, while four-to-ten-day old bees are displaced. However, these older bees do not move far, but remain on the comb adjacent to the brood combs, where they begin to clean cells.

When the queen comes to such a comb, she starts to lay immediately and the young displaced bees begin to feed her and the larvae that subsequently appear. Therefore, the egg-laying activity of the queen is governed by the displaced nurse bees, since she can lay only as many eggs as there are cells prepared by the nurse bees.

In a strong colony, sooner or later, there will be more than the required number of nurse bees to take care of the space available for the egg deposition. The nurse bees then begin to build queen cups. At this stage a large circle is formed around the queen, the bees become excited and begin to perform the "shaking dance" on or around the queen. The closer the day of swarming, the more often the dance is performed on the queen.

After the eggs in the queen cups hatch, the nurse bees supply the larvae with an abundance of food. The number of bees feeding the queen diminishes and sometimes they even refuse to feed her. In spite of this, the queen may continue to lay a few eggs each day up to and including the day of swarming. Because of this decrease in feeding, the abdomen of the queen diminishes in size, consequently she becomes lighter and more able to accompany the swarm in flight. The decrease in egg laying results in further increase of the number of jobless and displaced nurse bees. They fill out all available space in the hive, sometimes even hanging outside. Taranov calls them the "active swarm bees" because those are the bees that leave with the swarm.

The "Warble" of Unemployed Young Bees

Woods (1959) observed that a special "warble" is heard in the hive which is produced by the unemployed, four-and-one-half to six-day old bees. During the pre-swarming period this

The worker bees form a circle around their queen.

"warble" progressively increases as more and more nurse bees are thrown out of work. Woods developed and patented the "Apidictor" — an apparatus which records the "warble". Woods claims that, by using his "Apidictor" the swarm preparation in a colony can be detected.

About a week before the swarm issues the queen may be pushed about and treated more roughly. There appears to be no particular desire to force her in any definite direction, but the tendency seems to be to keep her moving. Sometimes workers even bite at her legs if she stops moving.

Piping In and Out of the Queen Cell

Allan (1950) noticed that about a week before swarming the old queen may start "piping". Apparently contact with queen cells has some connection with "piping" because on one occasion, about an hour before the swarm left, the old queen "piped" 25 times during 25 minutes, of which on 14 occasions she was on a queen cell, six times she was near one and the remaining five times she was elsewhere on the comb.

Several days before swarming an abnormal number of bees may be seen sitting quietly on the bottom of the combs. According to Lindauer (1957), at this time the searchers may begin to look for a new nesting place. The searchers start doing this mainly, if not exclusively, because of the over abundance of sealed brood, pollen and honey in the mother hive and because the hive bees refuse to take the loads of nectar from them. Thus the unemployed field bees become searchers for a new place. The searchers perform the wagtail dance in the hive, indicating the direction and the distance to the prospective new site.

Shortly before the swarm departs the bees fill themselves with honey. This is important. Experiments by Taranov with shaking the bees and the queen from a colony prepared to swarm into a nucleus which was then placed on a new stand, showed that only when the bees had their honey stomachs full, then 31-51 per cent of them remained with the queen. If such shaking was done when the bees had their honey stomachs empty, almost all of them returned to the original hive except for a few hundred which remained with the queen. Apparently it is only when the swarm bees have their honey stomachs full of honey, they can forget their old location.

Searchers Perform "Whir Dance"

To quickly start 20 to 30,000 bees to swarm the searchers perform a special characteristic "whir dance" (Lindauer, 1957). Highly excited and nervous, they force their way among the bees in zigzag running steps, vibrating their abdomens and producing a perceptible whir with their wings. One or two bees start this "whir dance", after a minute there are dozens. The number of whirring bees increases until the whole hive is in tumult. The queen by this time is undoubtedly pushed by one or two bees at a time. Some queens appear to be trying to resist, even staggering doing this. When the swarm is leaving, the queen may still be trying to run away from the bees which obviously attempt to force her down. Finally she is chased out and leaves with the swarm.

What proportion of the bees go out with the swarm? The number may be from about half to 90 per cent. According to the majority of observers, the age of bees in a prime swarm is mostly from three to 23 days, although the bees of all ages can be found in the swarm.

Meyer (1956) who studied the division of labor in a swarm, found that when a swarm settles, it consists of two distinct parts; outside shell, about three bees thick, quite compact, and the inner, loose part, consisting of chains which are in many places connected with the shell. The latter gives protection to the swarm against outside influences and gives the swarm the necessary mechanical strength. In the shell there is a distinct entrance toward the inside of the cluster.

Division of Labor in the Swarm

The searchers are all over 21 days old. The bees in the shell are 18-21 days of age. Inside the cluster mostly house bees—up to the age of 18 days are present. The bees in the shell are constantly changing places—during a 10 minute period two thirds of the outside bees in the shell changed their places with those inside of the shell.

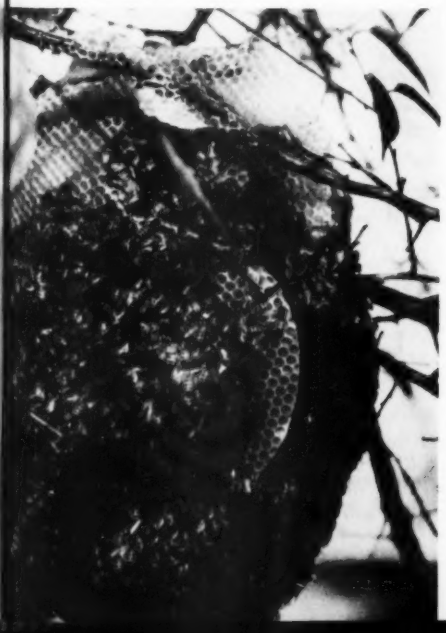
According to Lindauer (1957), after the swarm is settled the searchers dance

in various directions on the surface of the shell, because they usually come from different prospective nesting places. From all available places the searchers can select the best one. They prefer a wooden hive over a straw skep, wind protected over not protected, farther located over closely located, though to certain limits. Also the roominess, exposure to sun's rays, infestation with ants, play roles in the selection of a prospective nesting place. The most important factor is the protection from wind.

The better the nesting place, the more lively is the dance of the searchers. Inferior places evoke a less vigorous dance, and the bees dancing it observe the dances of the searchers from a better place, inspect the latter and, upon returning, announce this place to the bees in the cluster.

The searchers also make repeated visits to the future nesting place, to check up on the conditions. They may even stop "advertising" the place if the conditions turn unfavorable. When there are two equally good places, two strong groups are dancing. If the bees do not come to "understanding" the cluster may divide, start flying, but after a short time the parts come together again and the searchers may try to "agree" again. If this becomes impossible, then the swarm builds its nest on the place of attachment.

A swarm without a home.



When the searchers "agree" on the place, they start the "whir dance", boring holes in the cluster. One can hear a very loud humming inside the cluster, the bees start to clean themselves, start running to and fro, creating tumult. When the excited running reaches its highest point—five to ten bees simultaneously fly out from the cluster, hundreds follow and in a few seconds the whole cluster disbands. It appears that the swarm is led by about 100 bees who fly quickly toward the new nesting place, while the bulk of the swarm proceeds at a slower pace. The "leading bees" return, fly at the border of the swarm, and then "shoot" quickly to the fore. The searchers also perform the "whir dance" on the new location after the swarm starts to occupy it. The significance of this dance is not yet known.

What Causes a Colony to Swarm?

Several theories are advanced for explanation. The overcrowding or congestion theory was advanced by Demuth in 1921. Demuth considered that "probably the greatest single factor in the cause of swarming is the congestion of unemployed bees within the brood nest". Another is the brood-food theory which was proposed by Gerstung in 1926. According to this theory, when in a growing colony the number of nurse bees becomes far in excess of the number of unsealed larvae to be fed, the nurse bees start building swarm cells, utilize the surplus of the brood food for feeding the queen larvae and then leave with the swarm. Taranov (1946), on the basis of his observations, suggested that both the surplus of brood food and congestion of unemployed and displaced nurse bees play roles in causing swarming. However, Simpson (1958) who artificially created conditions of overcrowding, surplus of nurse bees, lack of open larvae, lack of available space and other conditions, could not induce some colonies to swarm. Simpson also observed that colonies frequently destroy queen cells of their own accord and may then make no further preparations to swarm in that season. Moreover, actual observations in the apiaries conducted by Simpson (1959) showed that the beginning of preparations for

(Continued on page 307)

Charley Ball Cosby receiving his certificate for completing a short course in Apiculture.

Foulbrood Couldn't Lick Uncle Charley

J. L. CATON
Newport, Tenn.

If you were 75 years young and your bees were destroyed by American foulbrood would you do what Uncle Charley did?

USUALLY WHEN a fighter is backed up in a corner—just hanging on the ropes—he throws in the towel. He's whipped, he quits.

When Uncle Charley Ball Cosby found himself "backed up in a corner" from his triple-threat opponents, he didn't throw a towel in the ring. He threw in his hat.

"I ain't a quittin' now ner never",

he said, "
75-year-old
Great
Park wasn
year-old "
received f
grandfathe
take them
him. They
68 years
140 stands
makers in
Smokies, f
had to sta
beautiful
smoke. W
Well, th
hat went
he started
"Nuts,
ary", he sa
gorges, of
of land-bu
from three
calls a cab
down the
Ben W. H
along slith

No Cure

"I know
foulbrood,
age, and I
ner. I didn
but I did h
in."

Now eig
loss of tha
ary, he is
hives, the
father gav
good Lord
woods blo
up again.

Can't Stop

"You k
at once—
70 years,
broken at
sick and d
"Why, t
like little
got real s
died like a
hits."

But Un
time he's
foulbrood
all of the
Bee Inspec

he said, "I'm comin' back." And the 75-year-old mountain veteran meant it.

Great Smoky Mountains National Park wasn't even a whisper when five-year-old "Little Charley Ball" in 1888 received five stands of bees from his grandfather who told the little boy to take them and they'd take care of him. They did take care of him, but 68 years later when they had built to 140 stands of the best sourwood honey makers in the whole of the Great Smokies, foulbrood let him down. He had to stand by and watch that whole beautiful apiary go up in a puff of smoke. Whew! What a pall.

Well, that's when Uncle Charley's hat went into the ring. That's when he started fighting.

"Nuts, I'm going to rebuild my apiary", he said with the spirit born of the gorges, of mountain "blow downs" and of land-buyers who closed in the area from three sides, and left him what he calls a cabin site with only a peephole down the "big road", the beautiful Ben W. Hooper Highway, that snakes along slithering, 20-mile Cosby Creek.

No Cure for Brood

"I knowed there warn't no cure for foulbrood, ner for land-buyers, ner for age, and I knowed I's pinned in a corner. I didn't have a towel to throw in, but I did have a good hat, and it went in."

Now eight years after the complete loss of that prosperous 140-stand apiary, he is coming back. He has five hives, the same number that his grandfather gave him in 1888, and if the good Lord lets him live, and the sourwoods bloom, he'll build that apiary up again.

Can't Stop

"You know a feller can't stop—all at once—doing what he's been doing 70 years, even if he has been heartbroken at seeing his 'little babies' get sick and die."

"Why, them little fellers acted just like little people. They went dopey, got real sick, and toppled over and died like a herd of hogs when cholera hits."

But Uncle Charley says that this time he's going to prop against the foulbrood disease. He's going to use all of the preventative remedies that Bee Inspector Roy D. Brown of Newport says to use, and more than that, he says that he's going to encourage beekeepers everywhere to learn more about this disease, to recognize it's early symptoms and start fighting it then. In addition he says that he is going to work harder than ever to induce schools of agriculture to teach it to their students, and urge the Department of Agriculture to put on more men to go about the country teaching the value of bees in a well-developed farm program, so that apple blooms can be certain of ample pollination, and all other vegetation shall have its share of help from bees in bringing on a greater harvest.

What would peach and apple growers do without bees? What would vegetable growers do without bees? Why, the country would soon be as devoid of life as if it had been cobalt stricken.

And dad-blast it, Uncle Charley, we are for you! Long may your hat stay in the ring. Long may your bees live and prosper, and stay free of that foul foulbrood.

"What'll I do? He says it's Honey or your life!"

Package bees Cut-comb

AT PRESENT we are operating approximately 600 colonies in northern Michigan for cut-comb honey production. Package bees play a very important part in our operation. We use them to replace winter-kill which sometimes is quite severe in this northern country and also for expansion purposes.

Packages have many advantages for comb honey production. They require very little manipulation prior to honey

Fo
Ho

flow, they
queens wh
honey proc
to a minir
Of cou
vantages.

XUM

For Honey

"If handled correctly most package bees will gather as much or more than the average wintered-over colony."

ARNOLD H. HILBERT
Traverse City, Michigan

flow, they also assure you of young queens which are important for comb honey production. Swarming is reduced to a minimum.

Of course, there are some disadvantages. One is that we experience supersedure conditions which will range anywhere from 20 to 35 per cent. This condition seems to be present regardless of where the bees have been purchased. Most of these colonies do not gather a surplus of honey for that season. This condition as we see it, is probably the biggest fault of package bees today. The queens will lay well for three or four weeks then suddenly the colony is queenless and in a supersedure condition. It has been stated that Nosema is possibly the cause.

Another problem is that if the weather is against the package shippers, such as a late season or bad conditions, they sometimes get behind in their orders and the bees arrive here late. Our seasons are short here so bees must arrive on time. So that is another reason why we do not depend entirely on package bees.

Our season begins shortly after the first of the year when we try to estimate the expected winter-kill and decide on how much increase to make. When decided, we place an order to arrive here from about April 25 to 30, not later than May 10. We use mostly three pound packages as most of these bees are rented out later for orchard pollination.

Installing Packages

Bees are shipped by parcel post. They are brought home immediately and fed sugar syrup by a sprinkling can method, being careful not to wet them too much, and keeping them in a warm place until they have licked up all the syrup and are dry again. They are then loaded on the truck with one story ten frame standard hives that are previously prepared with two combs of honey and pollen and two or three combs of fresh sugar syrup and remainder of combs left empty for brood rearing. After the hives are placed, we then start shaking the bees into the

hives. Five or six combs are set aside until bees are in the hive, then are replaced immediately, care being taken not to crush bees under the comb. At this time the cork or paper is removed from the candy end of the queen cage and a hole bored into the candy with a farmer's match or jackknife. The hole is made almost big enough for the queen to escape. The cage is then placed tightly between two center frames with the hole up. The covers are then replaced. At this time we record the date, the source and size of package on the front of the hive. We used to release the queen immediately but sometimes she would fly or get lost, so we like to let the bees eat her out. Usually she will be out in a day or two. About ten days later we go back and very carefully check to see if the queen is laying. At this time about one out of 10 will either have been balled or not accepted. In that case another queen is introduced. For this reason we order one extra queen for each 10 packages to be shipped a week later.

By this time the fruit bloom is usually out and that helps to insure a fast build-up. About 10 or 15 days later the bees are checked again for food and laying queen. Queens are clipped at this time, if not done previously. If there is not a laying queen now, then it's usually too late to introduce another one. A late package will then be installed.

Most packages are held in single story hives. However, some of the better ones require more room so a shallow super is placed on each of them.

If handled correctly most package bees will gather as much or more than the average wintered-over colony. They are less apt to swarm under crowded conditions which are necessary for comb honey production. Supersedure is a problem, even with wintered-over colonies, although usually a wintered-over colony will have enough brood and young bees to carry over until a new queen is introduced or raised and still come up with some surplus honey.

An Interesting Experience

Referring to one experience we had in 1957, I was working out and trying to build up our apiary at the same time. Packages had come in, so after work we started shaking them in. Before we finished it got dark and we had to use the truck headlights. After shaking the last one, I went back and checked the first ones. I found almost all of them chilled and practically motionless. Not realizing that it had cool-

Ten days later the colonies are checked to see if the queens are laying.

ed off considerably and due to the fact that the bees had been wet down too much with sugar syrup for the cool condition, I was in trouble. The hives were loaded back on the truck and taken to our heated garage for the night. Next morning the bees were very much alive and were then taken back to the outyard. Most of them still gathered a good surplus that season.

Probably one of the biggest dangers is to chill the bees while on the road or by wetting them too much in chilly weather. Of course there is always a chance of overheating due to poor ventilation in warm weather.

When the weather is exceptionally warm, and even though the bees have been wet down well at the house, they will sometimes take flight while being shaken in. We carry along extra syrup and when this occurs, they are sprinkled again just before installation. One can determine just how much they will need once he has shaken a couple. We like to install most of them in the evening to prevent drifting, but that cannot always be done.

There are probably better ways to do the same job, but until we find them, we will be using these methods.

To sum up the whole matter of package bees, we are sold on them. As a rule they require very little care compared to wintered-over colonies, and no doubt can usually be developed into populous colonies that will collect a good surplus of honey.

They definitely have a place in our operation and the future looks good as long as package bees are available.

At present Michigan state law prohibits bees to be moved in on combs, so that eliminates the possibility of using bees on combs.

Beekeepers Are Friendly

MRS. RICE J. ACRIM

SEVERAL YEARS AGO, my husband and I attended our first bee meeting. When we drove up to the building where the meeting was to be held, we were a little reluctant to get out of the car and go inside. Being old, and farmers, we were afraid we would not fit in.

But, as soon as we stepped inside of the door, we realized our qualms were for nothing. Immediately, a little dark eyed lady spotted us. She greeted us with a smile on her face as bright as sunshine. She took me gently by the arm and said, "Hello, we are so glad you are here today. Please come on over and have a cup of tea and some honey cookies. The rest of the ladies are anxious to meet you."

I looked around to see what had happened to my husband. A tall young man had taken him in tow and was introducing him to the rest of the beekeepers.

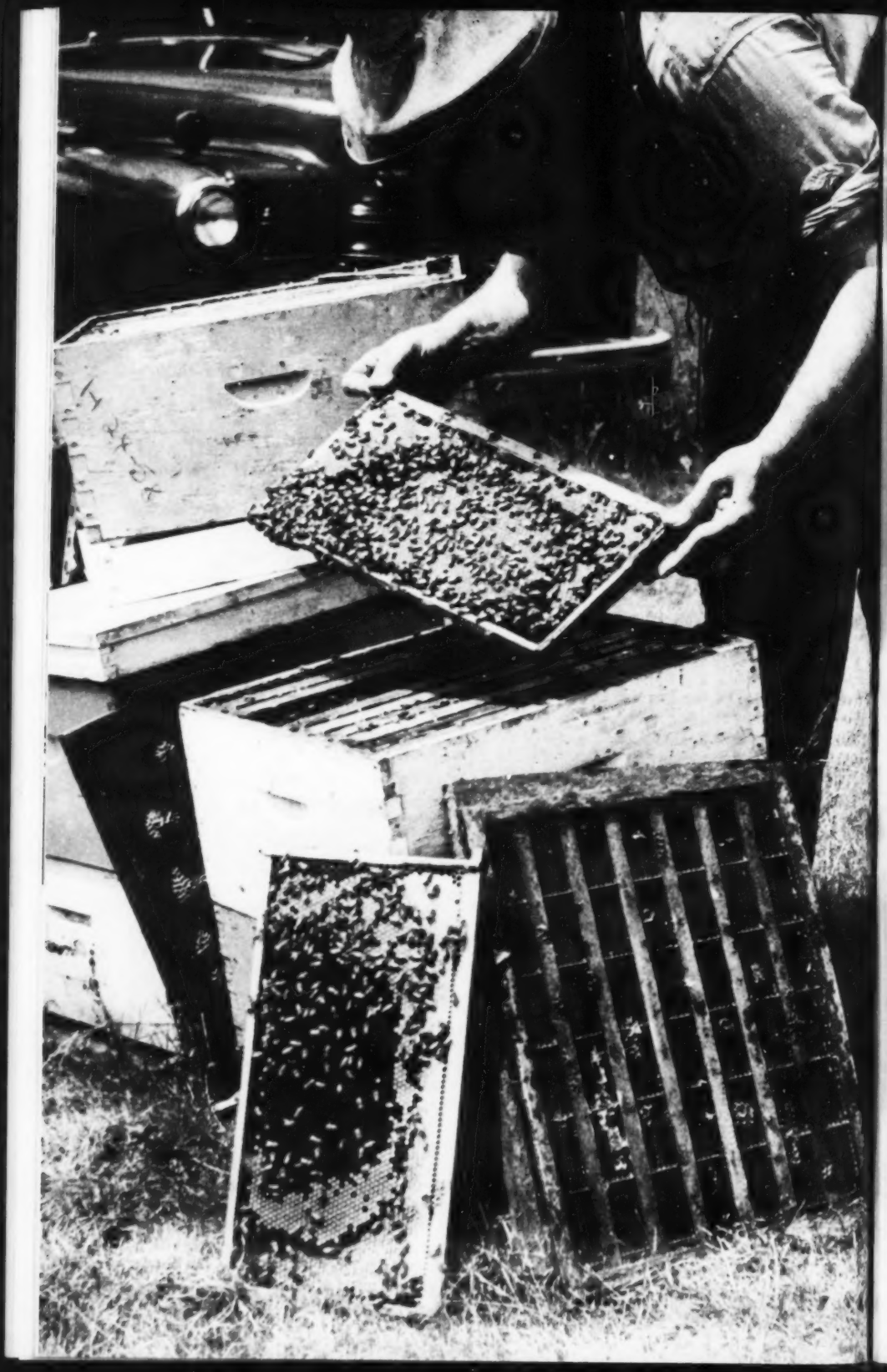
By the time we left for home, we were friends with everyone. We had a grand time. It had been fun being with other beekeepers and their wives and discussing our problems with others that had similar ones. We decided that beekeepers were certainly delightful people.

Since then, we have attended many other bee meetings and we have visited beekeepers in quite a few states. We have found that beekeepers are friendly and pleasant no matter where they are. They always go out of their way to make you feel welcome.

I've often thought that if beekeepers should ever adopt a creed for their way of life, most surely it would have to be the old Proverb from the Bible! . . . .

"Pleasant words are as a honeycomb; sweet to thy soul and healthy to thy bones." — Proverbs XVI-24.

Come to think of it, I believe most beekeepers already practice this rule daily, in a natural, unaware manner.



KENNET
Flint 7, M

A BEEK
valuab
with his
flying da
super is
colony of
son as ei
non-prod
boarders
have to
season.
man with
work ca

The
tant

into prod
honey cr

In this
and alsik
followed
sweet clo
of bad w
between
bloom.

Spring
there wer
the colon
of young
surroundi
make we
yards, beg
gone. Fi
colonies.
wintered
honey a
"peppy"
ally take
pollen a
dead, qu
carefully

YUM

Spring Apiary Management

KENNETH E. FARNER
Flint 7, Michigan

A BEEKEEPER'S TIME is never so valuable as that which he spends with his bees between the first warm flying days in the spring until the first super is put on. I always think of a colony of bees at this period of the season as either a potential producer or a non-producer. We cannot ship the boarders away to market like cattle but have to keep them over for another season. However, an experienced bee man with a little skill and a lot of hard work can turn most of his weaklings into producing colonies in time for the honey crop.

The way you manage your bees in the spring is the important factor in making a good honey crop in the summer.

In this area the main flow of white and alsike clover begins about June 10, followed closely with yellow and white sweet clover. So with the usual amount of bad weather, there is not much time between the first pollen and the clover bloom.

Spring management is much easier if there were a late fall honey flow and the colonies went into winter with lots of young bees well packed with honey surrounding the brood nest. I like to make weekly inspections of the bee yards, beginning as soon as the snow is gone. First, I mark all of the normal colonies. They are the ones that have wintered well and still have plenty of honey and a nice cluster of bright "peppy" bees. These colonies will usually take care of themselves until early pollen and honey are available. All dead, queenless, or drone layers are carefully inspected for disease and removed to the home yard where the hives are cleaned before being re-established with bees and returned.

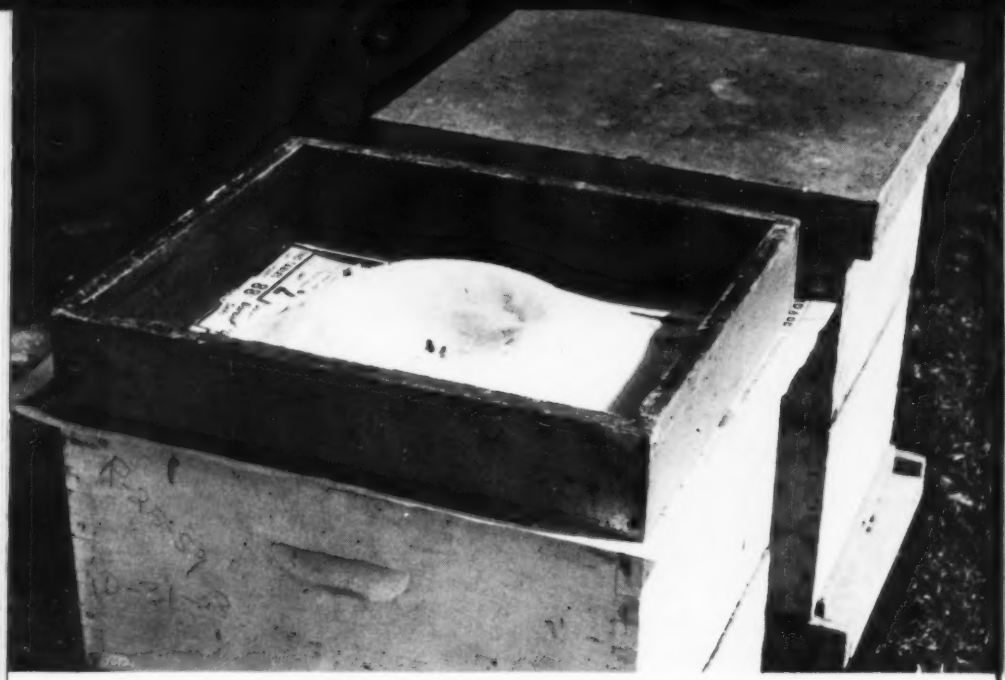
Feeding Colonies that are Below Par

It is the medium and weak colonies that I concentrate on and try to bring them up to gathering strength before supering time. The lightest of these colonies are fed dry sugar on the first trip. This is a quick easy way to get feed directly to the cluster and not so messy as syrup. A single sheet of newspaper with a small hole in it is placed over the cluster and on top of the frames. Over this I put an empty shallow rim that will hold five pounds of granulated sugar. I may feed dry sugar two or three times before the weather is warm enough to use sugar syrup.

When the bees start to fly it is time to make the first quick inspection of the brood nest. If this is done too early some queens will be chilled and lost. The appearance of the brood and egg pattern tells me the condition of the queen. Since I keep a queen record on each hive, I can tell the age of the queen and if there has been a supersedure. If the odds are too great against her the hive is marked for requeening. However, this is usually done later as early queens are hard to get, also expensive, so most of the first queens that I buy are used for increase or to make up winter loss.

I have found that the cheapest and

XUM



Feeding dry sugar directly over the cluster on a single sheet of newspaper is a good method to use very early in the spring. — Photo by Kenneth Farner.

best way to make early increase that will be ready for the honey flow is an old method known as "put-ups". Also these can be used to make up winter loss or replace queenless colonies. Any increase that is made too late will have to be held over for another season before any profit can be realized, unless you are blessed with a late honey flow.

To have bees ready for the clover crop in this area, I like to start these "put-up" divisions not later than April 15 or at least eight weeks before the major honey flow starts. Queens for these should be ordered well in advance, even as early as December to be sure to have them at this date. This type of increase is simply a four frame nucleus started over a strong colony to utilize the heat from the cluster below. Otherwise such a small division would perish from the cold. Generally I save brood frames filled with honey from the fall before to feed these nucs.

The only device used for this can be quickly made from a discarded inner cover by cutting a space about four by ten inches out of the center. Then it must be double screened by stapling wire screen on both sides of the hole. A notch is cut in the rim of the inner cover to be used as the entrance. I pick out a good husky strong colony and raise a frame of hatching brood with bees from it, a second frame of bees and brood is taken from a strong colony nearby. Then the queen in her cage and two or three frames of sealed honey are put into the empty hive body which is set on top of the strong colony with the double screened inner cover between. The next trip around finds the queen starting to lay and the little colony is on its way. In a surprisingly short time more combs must be added to fill up the top body. After five or six weeks this top colony should be taken to another yard to avoid drifting back of its precious field bees and used wherever a replacement or increase is needed.

Adding Booster Bees

After some prolonged cold winters, there will be many colonies in which the old bees seem to lose their vitality and die just before they are replaced with young bees. The colony seems to winter well but just at a critical time instead of building up they suddenly go backward by losing their field bees, in some cases even the brood is chilled and lost. This condition together with what we know today as Nosema was

called spring dwindling in early years of beekeeping. This leaves a colony hopelessly weakened and entirely unfit for a honey flow. These colonies are marked and given special attention. If the queen is not at fault, booster bees can be added in time to bring these back to normal. I have bought these shipped in packages but quite often they are hard to get on short notice, so in most cases I shake bees from strong colonies in another outyard, into screened cages and unite them with the weak ones. I usually do this by dumping them in an empty hive body placed over the inner cover with the escape hole open. These bees are taken from the extra strong colonies, which in turn are helped also, as some colonies build up very strong far ahead of the honey flow and seem to go to pieces before supering time.

More queens should be ordered for delivery during fruit bloom which occurs here about four weeks before our main crop. I generally find many queens that looked good on the first inspection are now starting to fail. The strain of heavy egg laying leaves them exhausted. This is no time to allow bees to supersede their queeen since any delay in brood rearing during this period will show up at harvest time. A good queen is very essential to a producing colony at all times. Replacing a poor queen at this time of year often means the difference of a honey crop or none as far as this particular colony is concerned. Besides, quite often a supersedure queen turns out poor, because she is reared under a somewhat stressed condition, also the parent stock may not be desirable. It is not always the best queen cell that hatches first but often a scrawny poor little queen will hatch first from a stub cell and tear the others down.

As soon as queens are available from the southern breeders so that I can depend on regular shipments, I carry a few queens on all trips to the outyards. This is done by releasing the attendant worker bees in the mailing cage and placing these cages in a special slotted frame which is put in a small nuc or portable queen carrying box. This is equipped with a few bees and one frame of brood and honey. It must be put in a warm building during the cold nights. In this box queens can be kept in good laying condition from four to six weeks. Also queens introduce better if the attendants are released. To do this, the queens should be ordered clipped.

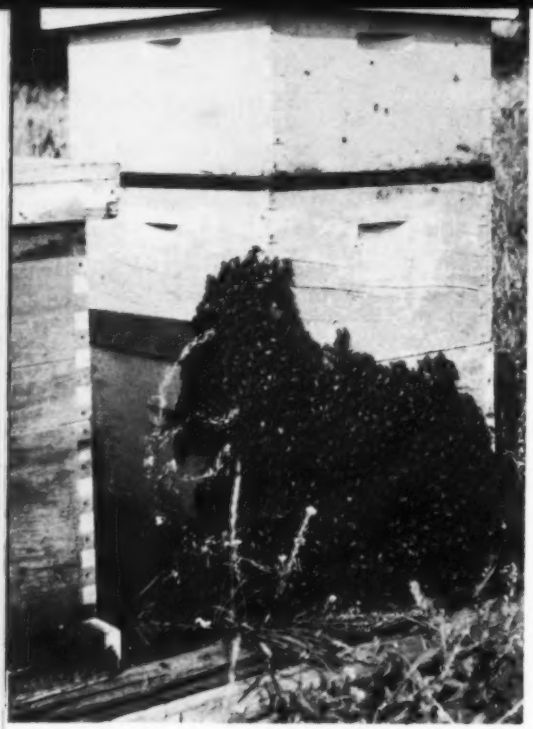
As the brood area expands during warmer weather the honey supplies dwindle fast so at this time I use sugar syrup to feed all colonies that are light. Also in some seasons just before the natural pollen is available, I feed pollen substitute which consists of soybean flour mixed with brewers yeast. By using honey or sugar syrup this is made into a stiff dough and placed on top of the brood frames over the cluster. However, it is seldom needed as we generally have a good carry over of goldenrod pollen from the fall before.

Discarding Poor Combs

At all times when I am working in the brood chambers I like to remove every damaged or drone comb. This is very important during the spring months, since one bad comb can prevent the hatching of a lot of much needed worker bees. These combs were sometimes spoiled by mice, or poor combs were set down from above, full of honey in the fall to winter on. Also I like to keep ten frames in the brood chamber, as it speeds up inspection, cuts down propolis and stops excessive burr comb on the top bars.

The spring work moves along much faster and a little easier as soon as natural honey and pollen are available. The soft maples are followed closely by elm which is the first taste of nature's stores that the bees get here in Michigan. However, the flying weather is suitable only about one year in three. It is not until mid-April when the pussy willows are in bloom that the bees bring in much pollen. Wild woods' flowers account for a dependable source of early nectar which is mainly from the little inconspicuous, pale pink flower known as spring beauty or (**Claytonia Virginia**).

Up until this time the most important part of spring work is to build up the weaker colonies and equalize the stronger ones, while a check of the food supply is kept at all times. Usually I find this shortage in only a few colonies in each yard or certain bee yards that were not able to get a good



Just before the major honey flow the bees should be strong and ready to work in the supers. Much of the early honey is lost because the bees were not ready. — Photo by Kenneth Farner.

supply of honey and pollen the fall before. During most spring seasons the weather in this part of Michigan is so changeable up to about fruit bloom which is the middle of May that a thorough inspection of all brood chambers cannot be made.

At the beginning of fruit bloom I like to give each colony a close inspection. This includes a final check of the queen and a thorough examination for disease. I spend no time clipping queens since they are ordered clipped or are clipped when introduced. If an unclipped queen is found in the hive it is presumed that she is a supersedure. Quite often this type of replacement is carried on in the hive without any interruption in brood rearing and if the parent stock is good I find a nice young queen to carry on.

Sometimes it is very disastrous and will result in a hopelessly queenless colony. Why some colonies will allow their old queens to reach a point of uselessness without any effort to raise a daughter is beyond me. However, I have found that the slightest infection of Nosema may cause an early supersedure, sometimes when the queen has only been laying a few months or even weeks. By looking at the egg pattern the condition of the queen can be assumed. A good evenly laid, tight egg pattern is generally from a normal queen, while a scattered pattern or with several eggs deposited in the same cell, shows a physically defective queen or one that has reached the end of her fertility. All such queens are immediately replaced and if there has not been a serious interruption in egg laying, the full supers of honey at harvest time will more than pay for the new queen.

Many years back, I adopted a policy that I would never employ a system of management on a few colonies that could not be used on a thousand. This has saved me a lot of time and worry. It is with that idea in mind that I will come to the last and very important part of the spring program. This is, how to put a queen excluder on when the first super is put over the double brood chamber.

The fruit bloom and dandelion blossoms usually come together in this section, which causes a fast expansion of the bee population. Also quite often as much as 50 pounds of honey is stored during this time. To take care of this and allow room for the increase of brood, I start putting on the third hive body or first super which is always filled with dark brood combs. First I raise two or more combs of sealed brood from the second or regular brood chamber to be put into the third one, replacing these with the dark combs. The brood combs are given a gentle shake in front of the hive or as I pick them up which most always removes the queen. Then I place a queen excluder on top of the old or second brood chamber which should have the queen in it, with the newly added super on top. This will accomplish two very important things; first it gives the queen empty brood combs to lay in and second, it immediately starts the bees going through the excluder up into the super. Both of these things are desirable to prevent swarming. From then on I generally top-super the balance of the season. This is a good system to follow when the outyards are a long way from home.

From nuclei

Increase With Nuclei

MARVIN W. KOSANKE
Ripon, Wisconsin

NEARLY EVERY beekeeper has an occasion when he wishes to increase the size of his apiary or to replace winter losses. Once in awhile we are fortunate to obtain several swarms during the summer. However, most beekeepers must rely on package bees to increase the number of their colonies. Another way to make up winter losses is to establish nuclei from extra strong colonies during the early part of the season. If this is done correctly it can be a very economical way of increasing the number of colonies.

About the time fruit trees bloom in this section I select a number of my very strongest colonies from which I am to establish the nuclei. The colonies should have a large amount of brood in both the upper and lower brood chambers. If they have additional brood in a third hive body, so much the better.

I remove about four frames with sealed brood well covered with bees. A frame with a little unsealed brood is all right but a large amount is not advisable. Naturally each frame is carefully checked to see that the queen is not removed along with it. The nuclei are brought from the outyards to a sheltered place in my orchard near the house where I can observe them closely. Moving the nuclei from the outyards prevents the bees from drifting back to the original hives and the loss of the nuclei.

For nuclei boxes I like to use the eight frame hive. It can be used to house a single nucleus or given a division board it can hold two nuclei. When used singly you can give the nucleus additional combs of honey if they need food and when the colony increases in size more combs can be given for the queen to occupy.

The nuclei are usually established two or three days before the queens arrive so as to have the queenless bees desire a queen. When a queen is caged in a nucleus a small hole is made in the candy seal with a 10-penny nail. This enables the bees to release the queen more quickly. Care should be taken when placing the queen cage between the frames so that the bees have access to the queen and are able to feed and care for her properly until she is released.

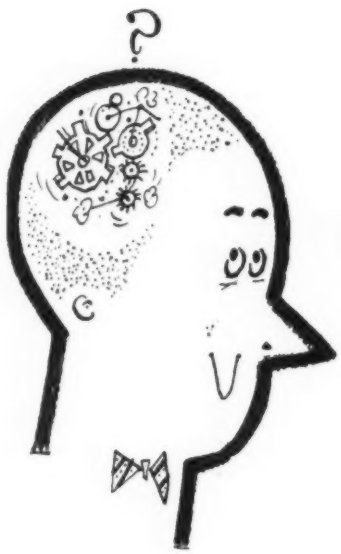
Be Sure Nuclei Have Ample Food and Comb Space

The beekeeper should carefully check all combs to see if sufficient honey is present. If there is not enough honey available, the bees must be fed sugar syrup even if there is nectar available. Usually the field force in a nucleus is insufficient to supply brood rearing needs or inclement weather may impede nectar gathering operations.

A nucleus established at this time should become a colony of good

(Continued to page 317)

to apiaries.



"Bee-wildered"

CLOSSON SCOTT
Pendleton, Oregon

WE NOTE that Gleanings asks for unusual experiences. I didn't kill a bear, or develop an easy way to hive packages of bees or to control swarming, but possibly the following experience may be interesting. At least it raised some questions in my mind. Probably many of the readers of Gleanings have the answers.

I am a retired life insurance agent and now possess about 80 colonies of bees. I have dabbled in beekeeping since about 1907 and since retiring two years ago I have become increasingly interested in bees and especially in the sale of honey. My location is in a fringe area, since it is in a section mainly devoted to the production of wheat and peas. There are a few waste spaces where honey producing plants can grow, and from those places we obtain small crops of very good quality honey. We produce some honey in the comb in shallow frames which are sold direct to the consumer. The rest of the crop is extracted, strained into settling tanks, then run into the containers, and stored until needed for delivery to the customers. The only time we use any heat is just prior to the time we deliver it to our customers and then we use only enough to liquefy it, and for only a long enough time to bring it to a clear state. We have received many compliments on the excellent flavor of our honey.

Now for the account of an interesting experience. My wife and I went to one of the local super markets for groceries. While she did the "heavy work", that is, the selection of the groceries, I struck up a conversation with one of the clerks. I had gone to the section where the honey is exhibited. It was almost lost among the jams, jellies and preserves, and there was not a very large amount, but if one wanted honey and knew where to look for it, it was available in 8 oz., 1 lb., 2½ lb., and 5 lb. containers.

The smaller containers were glass and the honey looked very attractive. I inquired of the clerk if he would tell me the mark-up on honey. He stated 35 per cent. I told him I had honey on hand and was interested in the price, since it might be possible for me to supply one store, if they could use local honey. I explained how I handle my honey, and he informed me that the store could not buy any local produce since they were under orders to sell only the items supplied by the chain's warehouse located 200 miles away. The honey they distribute comes 800 miles to the warehouse. I expected the conversation to end, but the clerk began to ask questions.

Folks Wanted Unheated Honey

He wanted to know where I sell my honey, and if he could buy some from me, and especially if I knew where he could obtain some comb honey. I told him that I happened to have several combs of the honey in shallow frames outside in my car. "The honey we have here" he stated "has been heated and filtered and it doesn't taste like honey".

We stepped outside to my car and he obtained his comb honey, which he transferred to his car. He seemed to be pleased to find out where to buy honey that has not been heated and filtered, as he asked for my card and told me that when he needed more he would call me, again stating that he was pleased to know where to get honey in the comb.

Since that trip to the super market I have been doing some thinking. Perhaps this one incident has no significance, again, perhaps it has. Here are some questions concerning the way much honey is marketed.

Who Knows the Answers to the Following Questions?

Why is it that honey is not prominently displayed in the chain stores and super markets? If there is a lack of demand for it can it be that a great many people feel like the clerk in the store, that the flavor of the honey in the stores is not as good as that they can get from the local beekeeper? Or (horrible thought) how many people think of honey as just another syrup, only perhaps higher priced, so why use honey? And aren't there still many people around who would buy comb honey, if it were available? And why is it an advantage to ship honey 1,000 miles when it is available in the immediate vicinity? Again, do the producers of the honey sold by the chains get a high enough price? They are probably big producers who number their colonies in the thousands, so there is no comparison with my puny operations, but still I wonder. And why is it necessary to sell honey only in the liquid form when our Canadian cousins sell it in the granulated form? (There was no "honey butter" or honey in the granulated form available in that store).

Now I like honey and we use it at our house every day. To me it seems superior to other forms of sweets. And we sell our honey locally to the many people who prefer honey and at prices above those in the chain stores. At this writing, December 24, the 1959 crop of comb honey has all been sold. The extracted honey is moving but not as fast as the comb honey moved. Evidently the price alone is not the important factor, for people drive to my place at the edge of town to buy honey direct from the producer at a higher price than they can buy it in the super market. Time after time we hear from them "This is the finest tasting honey we have had in a long time".

But again I wonder. Last week I met another beekeeper who retails honey direct to the consumer. He told me he had run short of his own honey and in the emergency had filled up some of his jars with honey from the super market. And what did his customers tell him? "That was the finest tasting honey we have had in a long time".

This is an interesting business. In the words of a certain comic strip character "It's amusin' but confusin' ".

After 52 years of being interested in bees and honey, I must admit that I am confused.

[Filtered honey need not have an unnatural taste.—Ed.]

PRICE SUPPORT 1960

THE HONEY PRICE SUPPORT Program for 1960 has been posted by the Department of Agriculture. Loans will be made, and honey delivered under purchase agreements shall be purchased, at the support rates set forth below.

For States of Montana, Wyoming, Colorado, New Mexico and States West Thereof:

	Rate cents per pound
1. White and lighter table honey	9.0
2. Extra light Amber table honey	8.0
3. Light Amber table honey	7.1
4. Other table honey and non-table honey	6.4

For All States East of Montana, Wyoming, Colorado and New Mexico:

1. White and lighter table honey	9.9

(Continued on page 314)

Professor E. J. Anderson demonstrates a model of a honey clarifier in the short course on beekeeping at Pennsylvania State College.—Photo by R. S. Beese.

Beekeeping Short Course

FRED C. SNYDER, Director
University Park, Pa.

THE 15th ANNUAL Beekeeping Short Course of The Pennsylvania State University is scheduled for August 15 to 19, 1960, announced Prof. E. J. Anderson, Beekeeping Specialist. Over 500 persons from 13 states and seven foreign countries have attended in the past, he said.

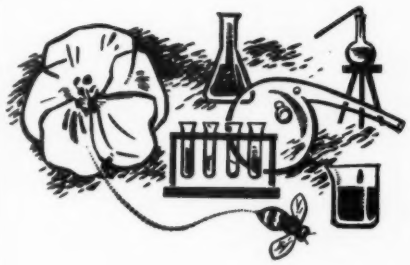
Students will also be able to attend the meetings of the Pennsylvania Beekeepers' Association on August 20.

Included in the instruction will be such topics as spring management and swarm control for comb and extracted honey production, methods of wintering bees, introduction of package bees, control of diseases and enemies of the honeybee, extracting and bottling of honey, queen rearing, requeening, fall management, marketing of honey, and care of bees for pollination of fruit and other crops.

One half of each day is devoted to lectures on the theory of beekeeping and the other half to practical application of bee management. Students will be given the opportunity to develop skills in the five University bee yards and in the laboratories. Students are required to bring their own protective equipment.

Any individual, 16 years of age or older, is eligible to attend. Younger individuals will be accepted if accompanied by a responsible person.

The cost of the course is $7.25 for Pennsylvanians and $12.25 for non-Pennsylvanians. More information and application blanks can be secured from the Director of Short Courses, Room 211 Armsby Building, The College of Agriculture, The Pennsylvania State University, University Park, Pennsylvania.



Research Review

DR. ROGER A. MORSE
Research Editor of Gleanings
and Ass't. Prof. of Apiculture
Cornell University, Ithaca, N. Y.

Nosema:

THE IMPORTANCE of Nosema infection has been a much discussed issue with opinion varying considerably from state to state and country to country. A recent survey in California shows that the disease may be found over the entire state. At the same time the number of bees infected varies with the season as has been reported from other areas.

An earlier author has stated that migratory operations, the rearing of queens, and the use of small nuclei create conditions which encourage the disease. This information is based on our knowledge of the life cycle of the organism. Dr. Jaycox suggests that control of the disease under these conditions and at certain times of the year would probably be profitable in California. His statement might well apply elsewhere.

Because there is such disagreement as one surveys the literature on Nosema it would appear that each beekeeper must weigh the data as it applies to his own area and draw his own conclusions. The cost and time involved in treatment must be weighed against the importance of spending this same time and money on other operations.

Jaycox, Elbert R.
Surveys for Nosema disease of honeybees in California. Journal Economic Entomology 53:95-8. 1960.

Location of Colonies for Alfalfa Pollination:

RECENT RESEARCH has been conducted in northern Utah concerning the factors which affect distribution of bees within a field. Distance from the colonies to the field is not the only important factor.

The factors which affect distribution of bees within a field are suspected to be soil fertility, soil moisture, and resulting variation in the sugar concentration of the nectar and quantity of pollen in addition to distance. Other unknown factors may also be important.

Despite the somewhat negative aspects of this research the authors conclude that it is still far better to locate the colonies as close as possible to the field where pollination is desired. Further work on this subject is in progress.

Levin, N. D., G. E. Bohart, and W. T. Nye
Distance from the apiary as a factor in alfalfa pollination. Journal Economic Entomology 53:56-60. 1960.

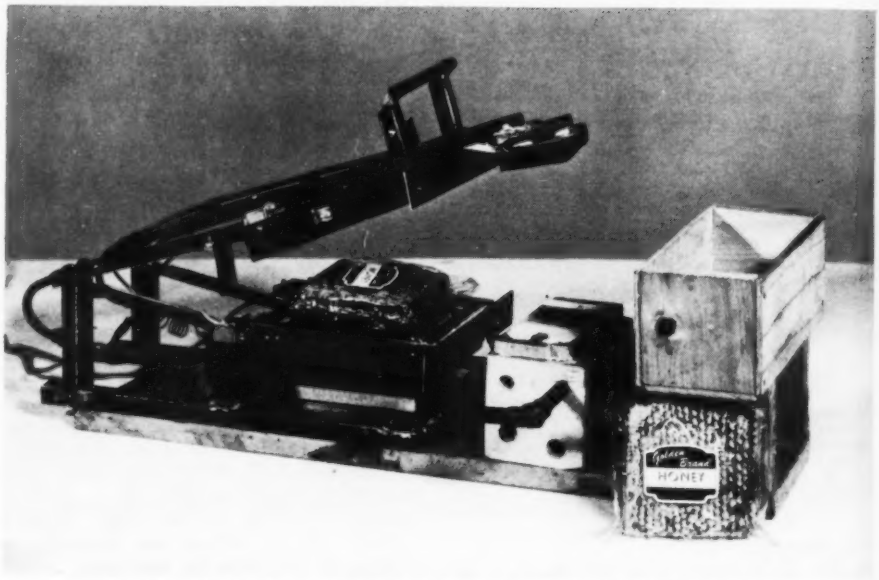
A Note on Beekeeping in China:

AT THE FEDERATION meeting in Tampa over a year ago considerable concern was shown over exports of honey from Red China to Germany. We have had little direct information about the beekeeping situation in China. A recent article resulting from two articles translated from the Russian gives us more detailed information.

It is reported that China is rich in bee plants but beekeeping has suffered for a number of years especially during the various and recent revolutions. In 1949 there were about 100,000 colonies of Italian and North Russian bees in China. Today there are about 350,000 colonies of bees of which

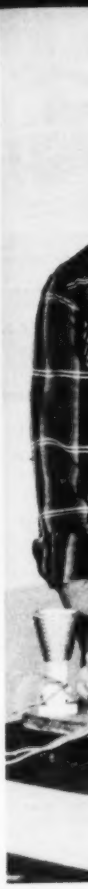
(Continued on page 313)

NEWS REEL



This is a patented machine used to wrap cut comb honey in cellophane. The inventor has tested it for seven years and claims it turns out a very attractive product. If you would like further information, contact William J. Maust, Rt. 1, Danville, Pa.

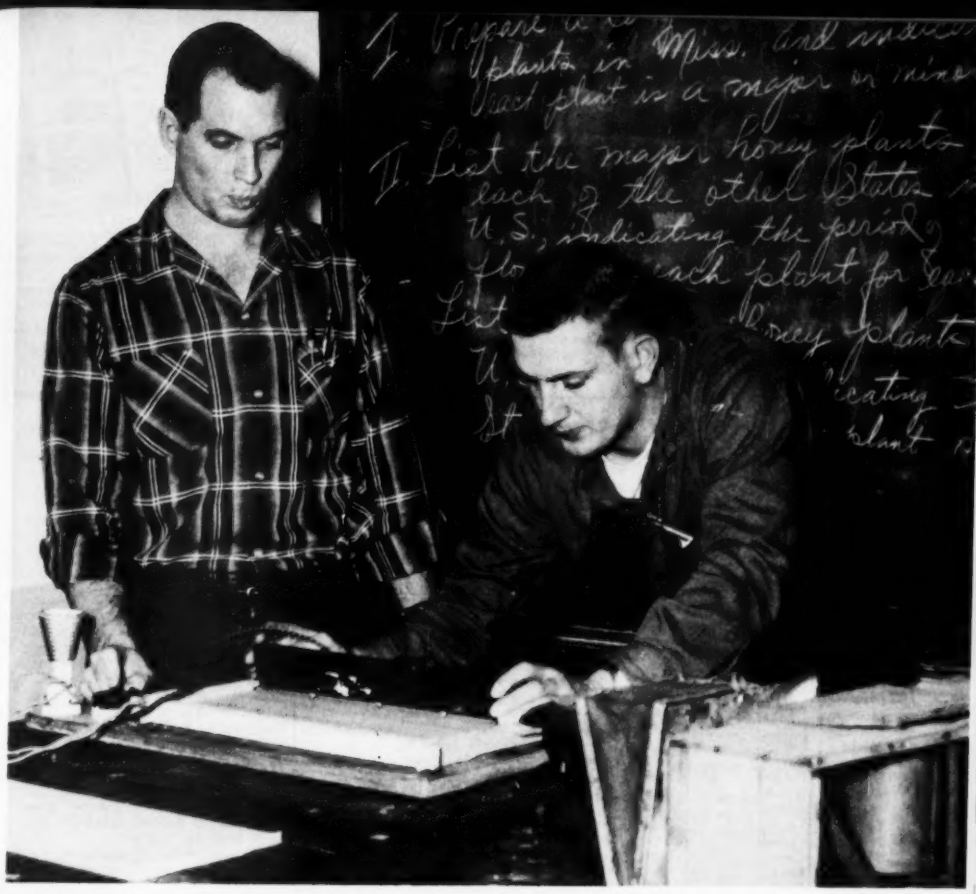
County Fair Junior Queen, Laurel Ann Wheeler and Junior King, Chris Ramey, take an intimate look at the 4-H prize winning Caucasian bees of George Nieman, (at right). Santa Clara County Fair, California. — Photo by Richard E. Nieman,



Students in

MAY, 196

YUM



Students in beekeeping class at Mississippi State University embedding foundation for use in the apiary.

Russell Jack's truck equipped with a hopper loader which is used to load both hives of bees and supers of honey. — Photo from Superior Photo Service.

XUM

Who's Who in APICULTURE

To supply a handy reference of the names and addresses of state and provincial apiary inspectors, secretaries of beekeepers' associations, extension workers in beekeeping, and other information often needed by our readers we have corrected our Who's Who in Apiculture as of April 1, 1960.

STATE OR PROVINCE	BEES ON COMBS ADMITTED	NET WT. LAW EXT.	NET WT. LAW COMB	INSPECTOR STATE OR PROVINCE	SECRETARY STATE ASSOCIATION
Ala.	No	Yes	Yes	C. A. North, Montgomery	F. E. Guyton, Auburn
Alba.	Cert.	Yes	No	A. M. Frost, Edmonton	Mrs. Clydie Bird, Edmonton
Ariz.	Cert.	Yes	Yes	Lyman E. Coe, Phoenix	Clarence Benson, Phoenix
Ark.	Cert.	Yes	Yes	George W. Freeman, Little Rock	Mrs. Rea Davis, Little Rock
B. C.	No	Yes	Yes	John Corner, Vernon	John Corner, Vernon
Calif.	Cert.	Yes	Yes	Homer Len Foote, Sacramento	R. K. McCaffree, Rosemead
Colo.	Cert.	Yes	Yes	Pat Powers, Denver	Harold E. Rice, Greeley
Conn.	Cert.	Yes	Yes	W. T. Brigham, New Haven	Mrs. Harry Powell, New Britain
Del.	Cert.	No	No	Lawrence Thompson, Dover	Inactive
Fla.	Permit			R. A. Martin, Gainesville	F. A. Robinson, Gainesville
Ga.	Permit	Yes	Yes	W. E. Blasingame, Atlanta	Jack Girardeau, Tifton
Ida.	Not Permitted	Yes	Yes	James Allen, Middleton	Orville Cox, Shelby
Ills.	Cert.	Yes	Yes	Carl E. Killion, Paris	Hoyt Taylor, Pleasant Plains
Ind.	Permit	Yes	Yes	Gilbert Perigo, Indianapolis	Gilbert Perigo, Indianapolis
Iowa	Permit	No	No	H. M. Harris, Ames	Robert B. Moorman
Kans.	Cert.	Yes	Yes	R. B. Boren, Manhattan	A. W. Magers, Kansas City
Ky.	Cert.	Yes	Yes	Tommy Hines, Morgantown	Mrs. Huber Johnson, Louisville
La.	No	Yes	Yes	E. A. Cancienne, Baton Rouge	Joseph J. Perry, Lake Charles
Me.	Cert.	Yes	Yes	Reginald B. Swan, Brewer	Mrs. Marjorie L. Jones, Auburn
Man.	Permit	Yes	Yes	D. R. Robertson, Winnipeg	D. R. Robertson, Winnipeg
Mass.	Cert.	Yes	Yes	Milo R. Bacon, Norwood	Wallace R. Parker, W. Boylston
Mich.	No	Yes	Yes	D. P. Barrett, Lansing	Margaret Seidelman, Ionia
Minn.	Cert.	Yes	Yes	C. D. Floyd, St. Paul	F. Q. Bunch, Welch
Miss.	Permit	No		Homer Tate, State College	C. A. Wilson, State College
Mo.	None	Yes	Yes	Julius R. Anderson, Jefferson City	No association
Mont.	Permit	Yes	Yes	Lloyd N. Graham, Bozeman	Mrs. O. R. Burdett, Laurel
Nebr.	Cert.	Yes	Yes	C. J. Walstrom, Lincoln	Mrs. DeEtta Bellin, O'Neill
Nev.	Permit	Yes	Yes	Floyd Hilbig, Reno	Earl Nygren, Fallon
N. B.	Cert.	No	No	Vacant	Walter Carlisle, Fredericton
N. H.	Cert.	Yes	Yes	James G. Conklin, Durham	Miss Barbara Prior, Westminster
N. J.	Cert.	Yes	Yes	J. C. Matthenius, Phillipsburg	E. W. Sutvan, Laurel Springs
N. M.	Cert.	Yes	Yes	Dallas Rierson, Univ. Park	Ersel C. Edwards, Los Lunas
N. Y.	Cert.	Yes	No	A. C. Gould, Albany	Mary Cary Trippe, Syracuse
N. C.	Permit	Yes	Yes	J. F. Greene & V. R. Ratley,	S. C. Squires, Chapel Hill
N. D.	Cert.	No		Dr. Jas. R. Dogger, Fargo	Dr. Jas. R. Dogger, Fargo
N. S.	No	Yes	Yes	E. A. Karmo, Truro	Philip Bishop, Sackville, N. B.
Ohio	Cert.	Yes	Yes	S. E. Bailey, Columbus	H. R. Swisher, Springfield
Okla.	Permit	Yes	Yes	Clyde Bower, Oklahoma City	Stanley Neal, Mangum
Ont.	Permit	Yes	Yes	P. W. Burke, Guelph	G. F. Townsend, Guelph
Oreg.	Imm. Regis.	Yes	Yes	Kenneth Goeden, Salem	Oliver W. Petty, Albany
Pa.	Cert.	Yes	Yes	George B. Sleesman, Harrisburg	Robert Crimbring, Canton
P. E. I.	Cert.	Yes		William Sterns, Charlottetown	W. A. Burns, Charlottetown
Que.	No	No		Henri J. Plourde, Quebec	Gaston Ringuet, Quebec
R. I.	Cert.	Yes	Yes	Dr. Harry L. Hansen, Kingston	Mrs. May Murray, Warwick
Sask.	Permit	Yes	Yes	D. M. McCutcheon, Regina	D. Campbell, Tisdale
S. C.	Cert.	Yes	No	W. H. Purser, Clemson	E. T. Anderson, Lowrys
S. D.	Cert.	Yes	Yes	Clarence Beck, Sioux Falls	L. J. Wylie, Sioux Falls
Tenn.	Cert.	Yes	No	L. H. Little, Shelbyville	Mrs. C. L. McGhee, Brentwood
Texas	Cert.	Yes	Yes	C. J. Burgin, College Station	C. J. Burgin, College Station
Utah	Cert.	Yes	Yes	Vacant	Marshall D. Levin, Logan
Vt.	Cert.	Yes	Yes	Robert M. Mead, White River Jct.	Wm. J. Damour, Bennington
Va.	Cert. & Permit	Yes		Henry W. Weatherford, Ver. Hill	Henry W. Weatherford, Ver. Hill
Wash.	Permit	Yes	Yes	Martin Peterson, Bow	Mrs. E. B. Purchase, Wapato
W. Va.	Cert.	Yes	Yes	O. M. Dick, Inwood	E. J. Harner, Martinsburg
Wisc.	Permit	Yes	Yes	John F. Long, Madison	Mrs. Rose Kehl, Watertown
Wyo.	Cert.	Yes	Yes	Everett Spackman, Cheyenne	Walter M. Fliegner, Riverton

UNITED STATES DEPARTMENT OF AGRICULTURE — Entomology Research Division, E. F. Knipling, Director, Beltsville, Md.; BEE CULTURE RESEARCH INVESTIGATIONS — Clayton L. Farrar, Investigations' Leader, University of Wisconsin, Madison. U S. BEE CULTURE LABORATORIES: University of Wisconsin, Madison; University of Arizona, Tucson, Frank E. Todd; University of Louisiana, Baton Rouge, Warren Whitcomb, Jr.; Agricultural Research Center, Beltsville, A. S. Michael; Utah State University, Logan, George E. Bohart; University of Wyoming, Laramie, John D. Hitchcock.

U. S. MARKETING AID — U. S. Dept. of Agriculture, Washington 25, D. C. MARKET DEVELOPMENT PROGRAMS, Specialty Crops Branch, Fruit and Vegetable Division, Agricultural Marketing Service, Marvin W. Webster; PRICE SUPPORT PROGRAM, Wage Price & Commodity Programs Branch, Sugar Division, Commodity Stabilization Service, A. A. Greenwood.

DOMINION OF CANADA APICULTURE SECTION ENTOMOLOGY RESEARCH INSTITUTE, CENTRAL EXPERIMENTAL FARM, G. H. Austin, Acting Chairman. No head has been appointed to date.

APIARY INSPECTORS OF AMERICA — President, S. E. Bailey, Columbus, Ohio; Secretary, Lloyd M. Graham, Bozeman, Montana.

AMERICAN BEEKEEPING FEDERATION — President, L. R. Budge, Malad, Idaho; Vice President, Henry W. Hansen, Dakota City, Iowa; Sec.-Treas., Joseph Moffett, Fort Collins, Colorado.

LADIES' AUXILIARY OF AMERICAN BEEKEEPING FEDERATION — President, Mrs. Harold Partello, Boone, Iowa; Vice Pres., Mrs. L. R. Budge, Idaho; Sec.-Treas., Mrs. Clayton H. Adee, Kearney, Neb.

BEE INDUSTRIES ASSOCIATION — President, Roland Stone, South Gate, Calif.; Treasurer, John Root, Medina, Ohio; Secretary, Charles Dadant, Hamilton, Ill.

SOUTHERN STATES BEEKEEPERS' FEDERATION — President, Eugene Jensen, Macon, Miss.; Vice President, Neal Miller, Safford, Ala.; Sec.-Treas., H. V. Maddox, Chattanooga, Tenn.

EASTERN APICULTURAL SOCIETY — President, Paul Holcombe, N. J.; Vice President, Frank Peterson, Secretary-Treasurer, Mary Louise Yates.

AMERICAN BEE BREEDERS' ASSOCIATION — President, Warren Wilbanks, Claxton, Ga.; Vice President, Lawrence Cutts, Chipley, Fla.; Sec.-Treas., Garnett Puett, Hahira, Ga.

AMERICAN HONEY INSTITUTE — Director, Mrs. Harriett M. Grace, Madison, Wis.; T. W. Burleson, Waxahachie, Texas, Chairman of the Board.

NATIONAL HONEY PACKERS AND DEALERS' ASSOCIATION — President, Ken Bradshaw, Wendell, Idaho; Vice President, Wendell Shore, South Gate, Calif.; Sec.-Treas., Irvin A. Stoller, Latty, Ohio; Ass't. Sec.-Treas., Harold J. Clay, Washington, D. C.; Directors are: Irvin A. Stoller, R. B. Willson, Edw. Burleson, Robert J. Steele, Wendell Shore, David K. McGinnis.

HONEY INDUSTRY COUNCIL OF AMERICA — President, Millard Coggshall, Minneola, Fla.; Vice President, Wendell Shore, South Gate, Calif.; Secretary, L. H. Little, Shelbyville, Tenn.

ROYAL JELLY RESEARCH FOUNDATION — Chairman, R. B. Willson, New York City, N. Y.; Secretary, George F. Hohmann, Napa, Calif.; Treasurer, Leslie H. Little, Shelbyville, Tenn.

1960 NATIONAL HONEY QUEEN — Miss Monicca McNutt, Nashville, Tenn.

STATE OR PROVINCE	BEEKEEPING TAUGHT IN AGRI. COL.	ANNUAL SHORT COURSE	PROFESSOR IN CHARGE OF BEEKEEPING COURSE	EXTENSION WORK CARRIED ON	EXTENSION PERSONNEL IN BEEKEEPING
Ala.	Yes		F. E. Guyton, Auburn	No	
Alba.	No			Yes	J. W. Edmunds, Edmonton
Ariz.	Yes		Frank E. Todd, Tucson	Yes	J. N. Roney, Tucson
Ark.	No			No	
B. C.	Some			Yes	John Corner, Vernon
Calif.	Yes		J. Eckert & H. Laidlaw, Jr., Davis	Yes	J. E. Eckert, Davis
Colo.	No			No	
Conn.	No			No	
Del.	No			Yes	D. F. Bray, Newark
Fla.	Yes		Milledge Murphy, Gainesville	Yes	John D. Haynie, Gainesville
Ga.	No			No	
Ida.	Yes		Dr. H. C. Manis, Moscow	Yes	Roland Portmen, Moscow
Ills.	Yes		V. G. Milum, Urbana	No	
Ind.	Yes		B. E. Montgomery, Lafayette	Yes	B. E. Montgomery, Lafayette
Iowa	Yes		Dr. Walter Rothenbuhler, Ames	Yes	R. B. Moorman
Kans.	Yes		R. B. Boren, Manhattan	Yes	R. B. Boren, Manhattan
Ky.	No			No	
La.	Yes		Warren Whitcomb, Baton Rouge	No	
Me.	Yes		Charles O. Dirks, Orono	Yes	Chas. O. Dirks, Orono
Man.	Yes		D. R. Robertson, Winnipeg	Yes	D. Robertson & D. Smith, Winn.
Md.	Yes		George J. Abrams, College Park	Yes	Geo. J. Abrams, Col. Park
Mass.	Yes		Frank R. Shaw, Amherst	No	
Mich.	Yes		E. C. Martin, East Lansing	Yes	E. C. Martin, East Lansing
Minn.	Yes		M. H. Haydak, St. Paul	No	
Miss.	Yes		C. A. Wilson, State College	Some	Extension Entomologist
Mo.	Yes		Dr. Curtis Wingo, Columbia	No	
Mont.	No			No	
Nebr.	Yes		C. J. Walstrom, Lincoln	No	
Nev.	No			No	
N. B.	No			Yes	Vacant
N. H.	Yes		Dr. Wm. R. Lee, Durham	No	
N. J.	Yes		Robt. S. Filmer, New Brunswick	Yes	Robt. S. Filmer, New Brunswick
N. M.	No			No	
N. Y.	Yes		E. J. Dyce & R. Morse, Ithaca	Yes	Dr. Roger Morse, Ithaca
N. C.	Yes		W. A. Stephen, Raleigh	Yes	W. A. Stephen, Raleigh
N. D.	Yes		David M. Noetzel, Fargo	Some	W. J. Colberg, Fargo
N. S.	Yes		E. A. Karmo, Truro	Yes	E. A. Karmo, Truro
Ohio	Yes		W. E. Dunham, Columbus	Yes	Chas. A. Reese, Columbus
Okla.	Yes		G. A. Bieberdorf, Stillwater	No	
Ont.	Yes		G. F. Townsend, Guelph	Yes	G. Townsend & P. Burke, Guelph
Oreg.	Yes		W. P. Stephens, Corvallis	Yes	W. P. Stephens, Corvallis
P.E.I.	No			Some	Wm. Sterns, Charlottetown
Pa.	Yes	Yes	E. J. Anderson, University Park	Yes	W. W. Clarke, University Park
Que.	Yes		J. E. Benoit, Quebec	No	
R. I.	No			No	
Sask.	Yes		C. F. Patterson, Saskatoon	Yes	D. M. McCutcheon, Regina
S. C.	Yes		W. H. Purser, Clemson	Yes	L. M. Sparks, Clemson
S. D.	Yes		R. J. Walstrom, Brookings	No	
Tenn.	No			Yes	L. H. Little, Shelbyville
Texas	No			Ltd.	State Inspectors
Utah	Yes		Marshall D. Levin, Logan	No	
Vt.	No			Some	Mr. Marchant, Burlington
Va.	Yes		J. M. Amos, Blacksburg	Part Time	J. M. Amos, Blacksburg
Wash.	No			Yes	Carl Johansen, Pullman
W. Va.	No			No	
Wisc.	Yes		D. F. Peer	No	
Wyo.	No			No	

Note: Where we did not hear from a state we repeated last year's listing.

Live and Learn

PROPOLIS PETE

GLORY BE, at last the weather has loosened up to the point that I can get out and see what is going on, instead of writing about what used to be or what I would like to have.

Up to the first of March it was an ideal winter for us, but when March came in like a lion, and the lion wouldn't get out, things got a little dubious. But at last the sun came out and the thermometer went up and the bees flew. So a quick peek under the covers showed that all 24 colonies came through.

Now there is a point that could be the subject of a lot of arguments. They all came through alive, but did I winter 100 per cent? I found four that were dangerously low in stores, in fact one was absolutely destitute. Ordinarily, if I find a colony that needs help at this time of the year, I'll put a couple of pounds of sugar on the inner cover and leave the escape hole open. But these four needed more than that, so I mixed up some syrup and fed them over the cluster with a ten pound pail, in the manner approved by the books. I used five pounds of sugar to the gallon of water. That is plenty heavy enough for spring feeding, and is a very convenient ratio. Sugar comes in five pound bags, so you don't have to measure it out. Three gallons of water and 15 pounds of sugar make a short five gallons of syrup, which fit very nicely into a 60 pound honey can.

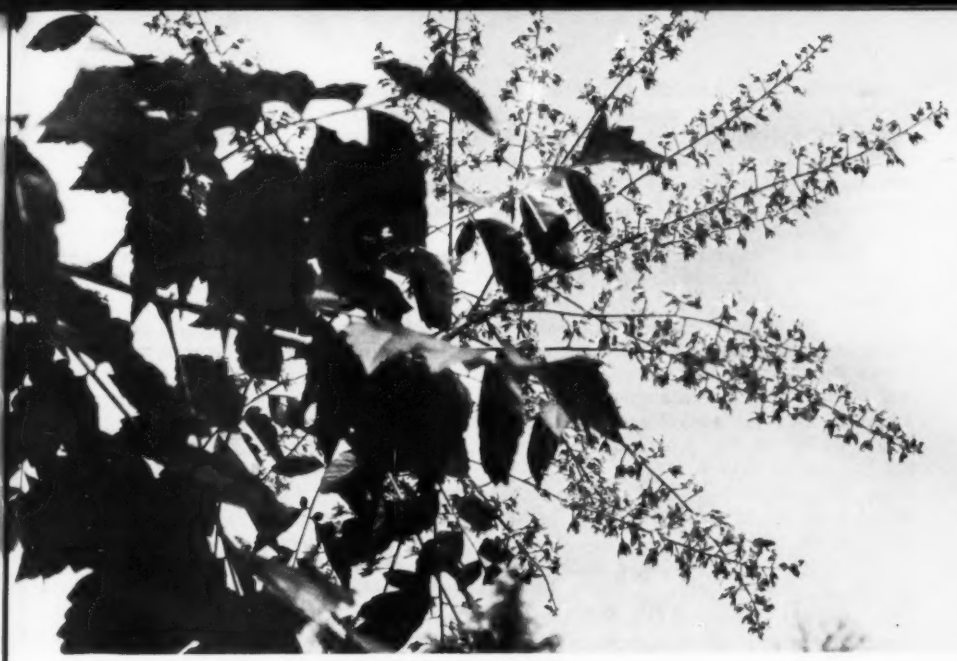
In addition to these four, two others showed signs of trouble. One started to howl when I lifted the lid, so I gave them a good look, wind or no wind. Sure enough, there was no sign of a queen. The other colony apparently did not even go into the top body, which was chock full of honey. So I looked through the bottom body, and again found no sign of a queen or brood. This second broodless hive did not show any sign of distress, so I closed them up again, and next week, given a nice warm day, I'll take a good look. The other queenless hive was united with the destitute colony, thus solving two problems at once. The queenless hive now has a queen and the charity case is rich in stores. But I have one less colony, so I ask again, did I winter 100 per cent?

During the past few months I have been writing about bees not doing what was expected of them. Here is a case where they did it once, and never again until this year. Why, I don't know.

About 15 or 20 years ago, the research boys looked into the habit of bees gathering grain dust from poultry feeders, flour if it could be found, or even sawdust during the early spring when they needed pollen, but when none was available. They found that most of these things gave the bees something to do, but were not much help when it came to rearing brood. In their experiments, they found that a mixture of soy flour, brewers' yeast, and skim milk powder made a good pollen substitute that would raise brood. Naturally I tried it out, and the bees loved it. I fed it in cakes mixed with honey, and put it in the brood nest where they could get it easily. That was the first and last time that they even looked at it.

After a couple years of wasted effort and material, I started putting out a few spoonfuls of the dry mixture to see what the bees would do. They did nothing, until this year. They went crazy over the first sniff, and now I have two wooden bowls full, and a million bees, more or less, are having the time of their life diving into it, rolling in it, and bringing it back to the hives in great lumps. How much good it is going to do I haven't the faintest idea. One side advantage is that you can tell just which hives are working it, and I think that maybe I will be able to spot the colonies that are short. If it does seem to do good, I'll try out the pollen cakes idea again.

A funny sidelight to this story is that when I first noticed bees on the flour, I ran right up to the line of hives to see who was getting it. My bees were not flying at all, and none of them were bringing it back. It must have been a wild swarm nearby in the woods, and I was helping everybody but myself. But that only lasted about an hour or so. My bees finally found it and boy, do they love it. Maybe they needed a little competition.



Golden Raintree (Koelreuteria paniculata)

Let's Talk About HONEY PLANTS

DR. HARVEY B. LOVELL
University of Louisville,
Louisville, Ky.

GOLDEN RAIN TREE (**Koelreuteria paniculata**) also called Japanese Varnish Tree, is a handsome tree when covered by great clutches of golden fragrant flowers. The fruits are shaped like chinese lanterns, making the tree easy to identify in late summer and winter. This tree was introduced into New Harmony, Indiana, by William McClure who sponsored a colony of scientific researchers there in the early part of the 19th century. There it was planted at the front drive and is still known as the gate tree. The people of New Harmony are very proud of this tree and give seeds or sell small seedlings to almost every visitor, and so are rapidly spreading the tree in southern Indiana and adjacent Kentucky. The town is said to be very spectacular in late June when the hundreds of trees burst into bloom. I discovered this tree in full bloom at Vicksburg, Mississippi, some years ago and noted it was alive with honeybees.

It blooms in July at Davis, California, where bees work the flowers heavily for nectar. Its use as an ornamental is increasing in all parts of the country. A local cemetery in Louisville has a circle of these trees which are very beautiful when in bloom.

Arizona. Mr. Lenard H. Hines of Tucson writes "Your articles on Honey Plants in **Gleanings** are always some of the first things I read when my copy comes; and oftentimes I am rewarded by having you discuss plants with which I am personally acquainted. Such was the case in December, 1959, issue in which you discussed a Madrona **(Arbutus,** sp.).

"This genus is found in many of our mountainous areas of Arizona and I know it occurs in the Catalina, Rincon and Santa Rita Mountains surrounding Tucson. Several years ago I made a large mallet of the wood for crushing ice for an ice cream freezer and it has been very durable. It is a dense, heavy wood with an attractive reddish brown color when polished.

"Whether or not it is a significant nectar producer here, I don't know, but I would like to learn more about it."

Washington. Captain Bundy has sent me additional information about the Honey Plants of his home state. He writes, "Manzanita which is quite common on some of the Puget Sound islands and along the Hood's canal section, yields a honey similar to huckleberry—but the bees will usually desert it for huckleberry when the latter comes into bloom. However, since it blooms shortly before huckleberry, it is usually a 'carry over' shrub in the localities in which it is found. Apparently since the bee is a canny shopper, it is lower in sugar content than the huckleberry. I have watched bees literally covering a Manzanita bush on Vancouver Island. I tried to obtain enough nectar from the floral nectaries to get a taste and found it to have a slightly spicy or peppery flavor, but I may have gotten this taste from some leaves I had handled".

Illinois. From Belleville, Mr. Harold Sauerwein writes to inquire about the varieties of Annual Rape which are most valuable for honey. He would like to obtain seed of Argentine, Swedish and Polish varieties of rape. If any one reading this can give information about these varieties, please write me. Rape is grown most extensively in Canada where it is frequently listed as an important honey plant.

We Learn By Our Mistakes

HAROLD FLECK
Cedar Springs, Michigan

IT WAS MY good fortune to spend my boyhood days in a country area where there were several beekeepers. There were no large operators and all operated for comb honey and they were located rather close to each other which made an ideal situation from the standpoint of pollination.

One such beekeeper had his bees in a hive in the attic of his house. He decided that he would move them to an outdoor location. As he needed help to do this he asked a neighbor who had bees, to help him. They proceeded to carry the hive downstairs. All was going well when the hive came apart, as the strain was too great for the propolis—they had not nailed the hive together. The bees mounted their attack on their careless and unfortunate bearers. Each of the men took to his heels. One ran down the highway slashing a brush about his head yelling, "Help! Help! Help!" The other man threw himself into some long grass near the house where he rolled in agony yelling to his wife, "Meda, they're killing me! Meda, they're killing me!" Fortunately, these men survived the ordeal, much wiser as to the techniques of moving bees. Needless to say, their bitter experience and their reaction to it was the source of many a laugh by those who found out about the incident.

In those rather distant days moving bees was a rather rare thing. Even if the bees propolize heavily, and you are going to move them, staple the hive parts together and screen the hive entrance.

Cooky Raids Ahead

MRS. BENJ. NIELSEN
Aurora, Nebraska

ERE LONG, MOM, there will be heavy raids on the cooky jar, not just the afternoon and bedtime snack kinds. Schoolmates congregating; neighboring small fry running in and out; hikes demanding quick-pack lunches sadly deplete the cooky jar contents. To keep ahead of demands, it is a good idea to stir up several kinds (easy to do in spare moments) and keep the doughs chilling in the refrigerator. Then it is just a matter of minutes to have toothsome honey-way cookies for those seemingly no-bottom appetites. Lots of variety this way, too.

Here is a good chance to work those nutritious cereals and energy-giving honey into daily diets. All of the following are excellent keepers (if you can manage to keep any!) and, flavor improves, given time to mingle and merge.

Honey Cherry Winks

Two and ¼ cups sifted flour, 1 teaspoon baking powder, ½ teaspoon soda, ½ teaspoon salt, ¾ cup butter, ½ cup sugar, ⅓ cup honey, 2 eggs, 1 tablespoon milk, 1 teaspoon vanilla, 1 cup chopped nutmeats, 1 cup finely cut dates, ⅓ cup finely cut maraschino cherries, ⅔ cup cornflake crumbs and 12 maraschino cherries, cut in quarters.

Sift together flour, baking powder, soda and salt. Blend butter, sugar, and honey; add eggs and beat well. Stir in milk and vanilla. Add sifted dry ingredients together with nutmeats, dates and cut cherries; mix well. Shape dough into balls, using 1 level tablespoon dough for each. Roll in cornflake crumbs; place on greased baking sheets. Top each with ¼ maraschino cherry. Bake in moderate oven, 375°F., about 12 minutes or until lightly

(Continued on page 313)

Honey Cherry Winks. — Photo courtesy The Kellogg Co.

Editorials

Who Will Inherit Our Industry?

"WE MUST INTEREST MORE YOUNG PEOPLE IN BEEKEEPING." THIS statement is being emphasized more each day in our bee journals and association newsletters. Speakers are often stressing in their talks at bee meetings the great need our industry has for new faces and new ideas.

Beekeepers everywhere are realizing that we must welcome younger men into our industry and do everything possible to help them get established.

One prominent beekeeper said recently, "We need and must have younger beekeepers. The young have the enthusiasm and drive. The older established men have the experience and wisdom. When these two join together and hit that happy medium. . . .our industry will prosper in profuse leaps and bounds!"

Some beekeepers have become so conscious of the need to create a deeper interest in beekeeping that they are donating their spare time in setting up exhibits and teaching the correct fundamentals of beekeeping to FFA, 4-H, and Boy Scout clubs. This is excellent, for what better media is there to reach young people than through these organizations? No doubt, quite a few will become interested in beekeeping through these men's efforts.

However, it is said that approximately 20 out of 100 people who became interested in bees will ever actually raise them. Five out of these twenty, perhaps, will deve'op from hobbyists to sideliners. . . . . and only one out of the five will ever tender a true love for bees, have the normal understanding and ability to handle them, and have the desire and determination it takes to become a commercial or full time beekeeper.

Will we lose this "one" born-to-be-a-beekeeper who could bring much needed enthusiasm and new virile ideas to our industry? Will he be welcomed into our industry by the older already established beekeepers, or, do we say orally that we want more and younger men in our fields, but secretly fear the competition an eager young beekeeper may bring to our own business?

Will we lose this valuable young man to another profession, where financial backing is easier to get for an initial start in business? These are points to ponder. We must realize that youth to an industry is as important as brood is to a beehive, one cannot survive without the other.

Who's Who in Apiculture

FOR A NUMBER of years Gleanings has been carrying two pages in the May issue under the above title. These pages contain a considerable amount of pertinent information that everyone connected with our industry needs. For example, if you want to know the name and address of any state or provincial bee inspector, turn to the first page where the states and provinces of Canada are listed alpha-

betically. The professors in charge of beekeeping courses and the extension personnel in beekeeping, are listed on the second page. Also you will find names of presidents and chairmen of various organizations within our industry, as well as heads of the six bee culture laboratories in the U.S. under Dr. C. L. Farrar. We appreciate the cooperation of those who have replied to our questionnaires.

For some years we have been carrying two pages of editorials in the center of the book. In this issue we are moving them forward and placing the "Who's Who in Apiculture" pages on the center spread where they can be found easily and removed if desirable. We hope our readers may find this arrangement helpful.

Keep Apiaries Safe from Elements if Possible

WIND, FIRE, AND WATER are difficult to cope with if they get out of control. We can't do much about wind, that is, tornados, cyclones, or hurricanes that may strike furiously and suddenly.

Fire can and does destroy apiary houses and in some instances apiaries. Fire extinguishers should be available, if and when needed.

During the years, water has destroyed many hives of bees. The recent high waters in some areas, due to melting snows and rains have carried away and drowned many colonies of bees this spring. It is somewhat difficult for a commercial beekeeper who maintains bee yards some distance from home to select apiary sites that are 100 percent safe from high water. In some cases a location may appear to be ideal in every respect but later, following heavy rains, water may creep up above hive entrances and even above hive covers and carry away the hives.

During June of 1928, following the Lorain tornado, The A. I. Root Co. lost an entire apiary of 23 colonies that were swept into a raging torrent and carried into Lake Erie. A person some distance from Medina reported seeing hives floating by his place enroute to the Lake.

When selecting a suitable apiary site one should place the hives on high ground and not too near a river or creek that might overflow its banks. The farmer or land owner where the bees are located should be consulted regarding the possibility of floods in the area. In any event hives should be kept high and dry—if humanly possible.

Condition of Bees Generally

A VARIETY OF CONDITIONS prevail over the country at present (second week in April). Deep snow and cold weather in parts of the North have held bees in hives for months. During the first week in April we met some beekeepers near Lindsay, Ontario, who said their bees had not had a flight since last fall. In that area some beekeepers feed thick sugar syrup late in the fall which they claim helps to prevent possible poor wintering due to the bees using late gathered honey of inferior quality.

Deep snow in the north has protected bees from the cold winter winds. Populous colonies that had an ample amount of good quality stores last fall are likely to survive the severe winter. Sub-normal colonies with insufficient stores are likely to perish. The moral of this seems to be that beekeepers should be sure that all colonies going into winter are strong and have an abundance of stores.

Cold weather in parts of the South has interfered with normal production and shipping of bees and queens. However, customers in the North where the season is later than usual will not need their shipments of bees quite so early as they ordinarily receive them.

Moisture conditions are considered generally good throughout most of the country and prospects are promising for the coming honey crop. It has been said that a severe winter usually precedes a good honey crop and if this is true we are in for a bumper crop.

CAUTION:

in the use of Chemicals, Drugs, Antibiotics

Dr. C. L. FARRAR
Bee Culture Research Investigations, Agricultural Research Service, U.S.D.A. 1/

THE BEEKEEPER MUST recognize that Federal food additive laws now in effect apply to honey as well as all other foods. The large purchasers of honey are requesting suppliers to certify that the honey offered for sale is pure and free of contaminants. Honey, like any food product offered for sale, can be condemned if it contains even traces amounting to less than 1 part per million of a chemical, drug, or antibiotic for which no legal tolerance has been established. One publicized condemned shipment could do great harm to the entire honey market. This situation need not cause a panic in the beekeeping industry, but **it does require caution and good judgment in how chemicals and medicants are used.**

Many beekeepers think the food contamination problem centers on the use of sulfa compounds and antibiotics for the control of bee diseases. These are important, but, when used with discretion, they probably present less of a problem than carbolic acid used for the removal of honey, calcium cyanide used for killing colonies before extracting the honey, and the fumigation of comb honey.

Most of the materials in question are needed for profitable beekeeping management. Experience has shown that they can be used safely for the purpose intended provided they are employed at the right time, by the right method, and at the correct dosage. However, meeting the legal requirements with respect to residues is a matter of special importance. Precautionary recommendations are presented here as a guide in the use of the principal chemicals and medicants employed in beekeeping practices. The recommendations will be subject to change as more specific information on each becomes available.

Sulfathiazole, streptomycin, dihydrostreptomycin, terramycin, fumagillin, and similar materials **should be used primarily as disease preventives.** These medicants also have value in eliminating active infections. The distinction between disease prevention and disease control is in the degree of colony infection. For disease prevention, they are directed against the infections that are not detected by inspection and before the pathogens have a chance to increase. However, **preventive treatment should not be substituted for careful and frequent inspection** of all colonies for disease. Any medication that does not prevent disease from developing in good colonies during a 2- to 4-week spring treatment should be considered ineffective and its use discontinued.

Medicants should be used only on vigorous colonies. Inferior colonies—colonies without vigorous brood production due to the queen, populations, or lack of pollen—will not clean up all the infected brood that may be present. Treatment of weak colonies usually results in a temporary check on the disease, which will recur some time later.

The medicants should be used early in the spring **at least one month ahead of the surplus honey flow.** The reason for early spring preventive treatment

1/ In cooperation with the Wisconsin Agricultural Experiment Station.

is to avoid loss of brood or bees from disease and provide ample opportunity for the colony to consume all medicated stores well in advance of the honey flow. Preventive treatment should be used in apiaries having a previous record of disease or in those located where disease has been present in other apiaries within flight range of the bees.

There are three general methods of applying medicants: (1) gorging the bees by pouring medicated sirup over the clusters, (2) mixing the medicant with powdered sugar and dusting it over the clusters, and (3) bulk feeding the medicated sirup by use of feeder pails, division-board feeders, or filling combs with sirup. All the medicants can be included in pollen supplement. The choice of method can affect the success of treatment. It is necessary to know the disease you are applying treatment against and the characteristics of the medicant that influence its effectiveness.

The gorging method provides good dosage control and the medicated sirup will be distributed in and around the entire brood nest, where it will be used immediately by the colony. The medicants should be added to heavy sugar sirup (2:1) because it prolongs their availability. Two additional treatments at 4- to 5-day intervals are necessary to enable the bees to clean up any infected larvae that may be present while protecting against further spread of disease. The procedure is to pour about 1 pint of the medicated sirup over each cluster, leaving the cover off as each colony is treated; then return to the first colony and add a similar quantity of sirup, replacing the cover. Continue with succesive colonies until all have received as much sirup as the bees will clean up. The amount to pour at one time will depend on the number of bees in the colonies, but use the maximum that will not cause an excess to run out the hive entrance.

The dusting method does not permit good control of the amount of medicant each bee receives. It has been commonly used but provides uncertain distribution of the medicants through the brood nest and some are toxic above certain dosage levels. Thus, the dusting method introduces many elements of chance in dealing with disease problems. Beekeepers can ill afford to take chances with methods that require prolonged treatment to eliminate disease. To do so increases the chance of contaminating the surplus honey, increases cost of labor and materials, and reduces the strength of colonies.

Bulk feeding does not provide the best distribution of medicated sirup in the brood nests of strong 2- and 3-story colonies, but it is satisfactory for disease prevention in package colonies or for fall feeding after the honey flow.

The incorporation of medicants in the sirup used for mixing pollen supplement cakes is recommended for disease prevention where the colonies are sufficiently strong to consume 1 to 3 pounds of supplement per week.

All **medical agents should be accurately weighed to provide exact dosage control.** Dosages are given in milligrams or grams because the amount required per colony or volume of sirup is too small to weigh in ounces. A balance scale weighing in grams is a necessity for proper use of medicants in apiary management, unless sufficiently large quantities are used at one time to employ scales weighing in ounces. One milligram equals 1/1000 gram, one gram equals 1/28.4 ounce, and 1 ounce equals 28.4 grams. If necessary, have your druggist weigh the amount you need. Use of a crude measure, such as a spoonful, may fail to control the disease or the treatment may prove toxic to the bees.

American Foulbrood

In most states official apiary inspectors are required to burn all colonies infected with American foulbrood. The State laws are designed for the protection of the beekeeping industry. Beekeepers employing therapeutic medicants should encourage full enforcement of their State inspection and disease-control laws. The presence of disease in any apiary is a menace to other beekeepers and an indication that the owner is not using proper control measures.

Inspect colonies frequently and comply with your State laws pertaining to this disease. Preventive treatment is desirable early in the spring for all colonies in apiaries having a record of American foulbrood or in areas where

this disease has been known to exist. Use 1 gram of sodium sulfathiazole per gallon of 2:1 sugar sirup (1 oz. sulfa/30 gals. sirup) applying three gorging treatments at 4- to 5-day intervals; also incorporate the same medicated sirup in preparing any pollen supplement.

Three dusting treatments with 160 milligrams of Terramycin in powdered sugar during a 2 weeks' period have also been reported effective. The Terracon preparations TM-25, TM-10, and TM-5 provide 25, 10, and 5 grams of Terramycin, respectively, per pound of Terracon. To provide 160 milligrams of Terramycin, mix 1 part of TM-25 with 4 parts of sugar and apply ½ ounce of the mixture per colony at each treatment (for TM-10 use 1 part to 2 and apply ¾ ounce or for TM-5 use equal parts and apply 1 ounce). Soluble terramycin (TAFSP-25) has been recommended at 54 milligrams per treatment.

European Foulbrood

European foulbrood has become a serious disease in the last 10 years. There is evidence that it was far more prevalent during the two preceding decades than beekeepers realized. For many years it attracted little attention because diseased larvae were seldom seen. We now know that considerable brood was lost, but it was cleaned out by the bees before the symptoms of European foulbrood could be recognized. Colonies with low-quality brood that is not due to poor queens, pollen deficiency, or similar factors respond to medicants that are effective against the virulent form of European foulbrood.

Streptomycin sulfate or dihydrostreptomycin sulfate at a concentration of 0.6 gram (600 mg.) per gallon of 2:1 sirup (2 oz./100 gals.) in three applications during a period of 2 weeks by the gorging method has proved most effective in the prevention or control of European foulbrood.

Terramycin has also proved effective but is somewhat slower in action than streptomycin. This may be due to its use as a dust or to the great variation in dosages that have been recommended. Terramycin is relatively unstable in solution and has generally been applied as a dust.

Nosema Disease

This disease of adult bees probably takes a greater toll of the productive capacity of honeybees than do the brood diseases. Nosema is so widespread we must presume that every colony has some infected bees. The infection level may range from less than 1 to 100 percent. Nosema shortens the life of bees by about one-half. The most important means of control is good colony management, which provides conditions that are favorable for brood rearing to add young bees to the colony faster than the infection spreads within the population. Losses from Nosema are most conspicuous in colonies started with package bees, in nuclei, and other weak colonies. Package colonies have no emerging bees for three weeks, and nuclei used for mating queens have low and interrupted brood production.

The antibotic fumigillin is effective in preventing Nosema from spreading within a population and in reducing queen supersedures due to the infection of the queen. One gallon of 2:1 sirup containing approximately 5 grams of Fumidil B (100 mg. fumagillin) should be fed to package colonies when they are installed in the hive. The product Fumidil B is packaged specifically for bee feeding with directions for its use, and each grain contains 20 milligrams of fumagillin. Nuclei should be fed the same concentration of fumagillin in all sirup they require.

Carbolic Acid Boards

The common practice of using carbolic acid in removing bees from supers probably presents a greater food-contamination hazard than do the medicants. A safer method is urgently needed. If you use carbolic acid, exercise the following precautions: (1) Use this method **only for removing sealed honey and under conditions** that will permit the bees to be driven off the combs in 2 to 3 minutes; (2) make sure the cloth is well separated from the super by use of a deep rim; (3) use chemically pure carbolic acid; (4) use it sparingly; (5) stand the supers on end when they are set off the hive to obtain maximum ventilation before loading, but use due precaution under conditions that would cause robbing; and (6) stack the

(Continued on page 314)

A Roll of Rubberoid

Roofing paper has many uses around the bee yard. This article lists some of them.

MILTON H. STRICKER
Stockton, N. J.

A ROLL OF RUBBEROID costs very little and will do so much around the bee yard, it is a surprise that more beekeepers don't use it.

When purchasing it from your local lumber yard or hardware store, you may buy the 45 pound "slater's felt" or the heavier roll type roofing material. Either will work for the jobs listed in this article. However, the heavier the material, the longer it will wear, but this advantage will be somewhat lessened by its not being quite so flexible and easy to use in some cases.

Perhaps the best place to use the extremely heavy roll roofing is under colonies. Many beekeepers in this area are beginning to use this under colonies in damp areas. A strip of wood or stone is placed **under the rubberoid** at the place where the back of the hive will be placed. This tilts the colony forward and also allows the rain to drain off the rubberoid, and away from the colony.

If this is a permanent yard and thinner roofing material is used, it is recommended to use two or three sheets. These sheets should be cut about three feet by three feet. This will keep the weeds down and moisture out for a long time.

One beekeeper in this area uses this ground cover then makes his bottom boards of three one-inch strips. He then sets this "skeleton" on the middle of the rubberoid and then sets the colony on this. For a permanent "not-to-be-moved" apiary, it makes a cheap but satisfactory bottom.

Squares of rubberoid cut about two feet by two feet are very satisfactory to use to cover stacked supers when inspecting during periods of robbing.

The author with a roll of Rubberoid.

These same squares can be used to direct heat down upon acid boards. Since it is black, it absorbs heat well and will hasten the clearing of supers on those hot sunny days when you remove your honey crop.

For those beekeepers who store equipment in the bee yards, it can be used to keep rain out of the stored supers. If it is heavy and new, it can even be stapled tight enough to keep mice out of those supers that are to be left until spring.

In my queen operation I use nuc

(Continued on page 316)

Talks To Beekeepers

M. J. DEYELL

"A Swarm in May
Is Worth a Load of Hay"

WHEN I THINK of May my mind goes back to my experiences in western Ohio when The Root Company had three or four hundred colonies in Sandusky County. One of the apiary locations had an unusual amount of dandelion. As a matter of fact during good years when the weather was favorable for nectar, bees would put up almost a shallow super of honey from dandelions. This would occur the last week in April and the first few weeks in May.

This early flow gave the colonies a tremendous boost. Practically all of this dandelion honey, which as you may know, is rather strong in flavor, would be used for brood rearing before the major honey flow started from the clovers. I can still see in my mind's eye those pastures near the bees completely covered with dandelion.

Ready to Extract, But Didn't

The former editor of Gleanings, George S. Demuth, once told me an interesting story about an experience he had near Peru, Indiana, where he kept bees during his early life. The spring was quite favorable that year for a good honey flow from fruit bloom, dandelion and other spring sources, in fact, the bees filled up brood chambers and put a considerable amount of honey in the supers. He and a neighbor beekeeper made plans to extract the spring crop of honey. They got all of the extracting paraphernalia ready but when they opened the hives to remove the surplus honey they found that the bees had consumed practically all of it for brood rearing. So they didn't do any extracting but left what little surplus the bees had, for brood rearing. That was the sensible thing to do.

There is usually a dearth of nectar for a short time between the spring and summer honey flows. It pays therefore to make sure that bees have an abundance of stores during the spring months, right up until the beginning of the major honey flow. It is not uncommon to have very populous colonies of bees starve just prior to the major honey flow. If some colonies appear to be somewhat light in stores it would surely pay to give them each a ten pound pail of thick sugar syrup.

Different Ideas about Swarms

Some beekeepers apparently like to have their colonies swarm, others try to prevent swarming. Those who do not object to swarming usually have the wings of their queens clipped so that the queens cannot accompany the swarms that may issue from their hives. I think I am correct in saying that comparatively few beekeepers practice clipping queens' wings at the present time. This practice was common years ago among comb honey producers. In producing section comb honey it is necessary to crowd the bees down to less comb space than is necessary in extracted honey production. It is necessary to have the comb honey sections filled and capped over before they are removed from the hive. During this process of

crowding the bees down, some colonies are likely to make preparations for swarming. In the production of extracted honey an ample amount of comb space may be given prior to and during the honey flow to relieve congestion within the hive, which is said to be the main cause of swarming.

Occasionally I meet a beekeeper who tells me that no swarms issued from his hives during the season. I feel like saying, "That's what you think". Now of course, it is possible for a beekeeper with one or two hives in his back yard to go through the season without any swarming. However, a commercial beekeeper with outyards is likely to have some swarming.

Different Methods of Handling Swarms

Naturally, beekeepers in different parts of the country have various methods of handling swarms. For example, if a swarm is found hanging on a tree in or near the apiary in which queens' wings are not clipped, the owner of the bees may not know which of his hives sent out that swarm. The only thing to do is to hive the swarm.

If however, he happens to see a swarm issuing from a hive he can watch the bees until they cluster and then he should move the hive from which the swarm issued, to another location at least 10 or 15 feet away, then put the swarm into a new hive placed on the stand from which the swarm came. The bees that were in the fields when the swarm issued will then return to the hive on their old location and some of the old bees in the hive that was moved aside will naturally return to their old location. In this way the swarm is strengthened. The old hive on the new location should normally produce a young queen in due time.

Producing Section Comb Honey Over Double Brood Chamber Colonies

Since there appears to be a demand for section comb honey some beekeepers who have not tried producing comb honey may wish to try it out on a few colonies. Some beekeepers, especially beginners, shy away from trying to produce section comb honey because they are afraid they cannot attain success. It should not be attempted unless colonies are boiling over with bees and conditions are favorable for honey production.

Two queen cells built on the edge of the comb.—Photo by T. H. G. Farnden.

During the years we have been experimenting with different methods of producing section comb honey. It has been customary to produce section comb honey over single story brood chambers. Our experiences have led us to believe that it is possible to produce comb honey over a double brood chamber colony. This obviates the necessity of reducing the two story colony down to a single story, also solves the problem of disposing of the extra story at the beginning of the main honey flow.

Prior to the beginning of the main flow it is usually necessary to put on one or more extracting supers during the dandelion and fruit bloom honey flow to make room for incoming nectar and thus avoid congestion, the main cause of swarming.

At the beginning of the main flow when comb honey supers are put on, the extracting super or supers put on earlier are removed, the bees are shaken off the combs in front of each

hive. Then these supers are given to colonies producing extracted honey.

Putting on Comb Honey Supers

Our colonies in these double brood chambers are usually so powerful that we have to put on two and sometimes three supers at one time. Strong colonies may have brood in 15 standard combs, when the first comb honey supers are put on. We like to give bees ample room, especially at the beginning of a good honey flow.

We aim to check our comb honey colonies regularly each week for at least two or three weeks at the beginning of the flow, until the bees settle down to storing surplus honey and have given up the swarming idea.

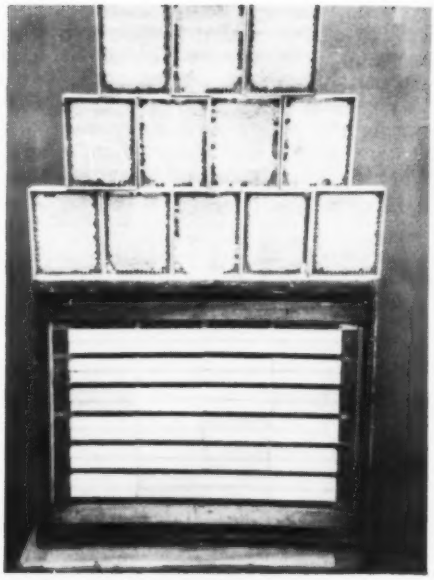
The double brood chamber lends itself naturally to a number of manipulations for swarm control. For example, if, during the first examination of the brood chambers after supers are put on, we find queen cells being started or eggs in cups, we remove all queen cells and place one of the comb honey supers between the two brood chambers temporarily and leave the remainder of the supers on top. This breaks up or separates the area of brood in the double brood chamber, tending to relieve congestion.

This comb honey super placed between the two deep brood chambers should not be left there longer than a week, because the sections might become travel-stained. It should then be put on top with the other supers.

On the second inspection a week later, if the colony still has ideas of swarming, queen cells should be removed and the position of the two brood chambers should be reversed or interchanged. This usually causes the colony to give up swarming. In a 40 colony apiary run for comb honey in 1951, we had only one swarm, so far as we know.

It is obvious that a queen in a double brood chamber hive has more comb space for egg laying than she would have in a single brood chamber. Since congestion within the hive is said to be the main cause of swarming, such congestion would naturally be relieved to a certain extent by using the double brood chamber hive.

Furthermore, it has been our experience that the double brood chamber



Section comb honey produced over a double brood chamber colony.

furnishes more comb space for the storage of pollen. In comb honey production, this means that there is less likelihood of pollen being carried up into the sections than is the case with the single brood chamber. Some perfectly fine comb honey sections are frequently spoiled because they contain a sprinkling of pollen in the cells. Double brood chambers help to eliminate pollen in sections.

The main advantage in using the double brood chamber hive in the production of section comb honey is that at the close of the season, after the surplus honey is removed, colonies are ready to go into winter quarters, so far as an adequate supply of stores is concerned.

If some of you beginner beekeepers try producing section comb honey over double brood chamber colonies, let me know how you come out.

We do not recommend double brood chamber colonies for comb honey unless the colonies are very populous, boiling over with bees, with conditions favorable for nectar secretion.

May, an Important Beekeeping Month

This is especially true in the North when bees build up in strength for the

(Continued on page 314)

NEWS and EVENTS

NEW HAMPSHIRE
State Beekeepers' Association
Candia, N. H.
May 7, 1960

The New Hampshire State Beekeepers' Association will hold its first meeting of the year in Rockingham County at the home of Dr. Sander in Candia, on Route 101 A.N.H., May 7, at 2 P.M. A special drive for membership of beginners is being planned. A package of bees will be installed at this meeting and will be given at the end of the season to the beginner beekeeper who holds the lucky number on his or her membership card.

Pollinating will be discussed by competent beekeepers.

Everyone and his neighbor are more than welcome to attend. — Barbara Prior, Secretary.

MISSOURI
Midwestern Beekeepers' Association
Kansas City, Missouri
May 15, 1960

The Midwestern Beekeepers' Association will hold its regular monthly meeting at Loose Park Garden Center, 5200 Pennsylvania Avenue, Kansas City, Missouri, 2:30 P.M., Sunday, May 15, 1960. Refreshments will be served. Everyone welcome.—James A. Worrel, Secretary.

18th ANNUAL BEEKEEPERS' SHORT COURSE
University of Minnesota
St. Paul, Minnesota
May 6-7, 1960

Friday, May 6 — Coffey Hall

A.M.
8:00 Registration
9:15 What should we know before starting with bees? M. H. Haydak
10:00 The advantages of beekeeping as a hobby. C. D. Floyd
11:00 Feed your bees right (with demonstrations). M. H. Haydak
State Apiarist, Division of Plant Industry, Department of Agriculture, Dairy and Food

P.M.
1:30 Value of bees to agriculture; should every farmer be a beekeeper? K. W. Tucker
2:30 First steps in beekeeping; equipment, assembly, choice of proper site. C. D. Floyd
3:30 Meet the queen.
M. H. Haydak, K. W. Tucker

Eve.
7:00 Know your honey.
Barbara B. North
8:00 How to present your honey at its best (showmanship and marketing). Helen Bunch

Saturday, May 7 — Coffey Hall

A.M.
9:00 Swarming and what to do about it. M. H. Haydak
10:00 Preparing for honey flow.
C. D. Floyd
11:00 What should we know about bee diseases and their control?
M. H. Haydak, C. D. Floyd

P.M.
1:30 Honey grading - in laboratory.
M. H. Haydak
Installing packages, handling colonies in the apiary. C. D. Floyd

IOWA

The beekeepers of western Iowa held a meeting in March and decided to form an organization. Their association will be named "Western Iowa Beekeepers' Organization". There were 40 members present and the following men were elected as charter officers: Walter Johnson, Sioux City, President; Erwin Glew, Sioux City, Vice President; and Charles Lyons, Anthon, Secretary-Treasurer.

EASTERN
Apicultural Society Meeting
New Brunswick, N. J.
June 23, 24, and 25

The Eastern Apicultural Society will hold its 6th annual meeting on June 23, 24, and 25 at Rutgers University in New Brunswick, New Jersey.

One of the feature speakers at this year's meeting will be Dr. L. Bailey of the Rothamsted Experimental Station in England. Dr. Bailey is presently touring this country and is an authority on bee diseases including the dreaded Acarine mite.

As in the past, persons attending the meeting will be housed in the University dormitories and expenses will be at a minimum. There will be speakers and demonstrations on Friday and Saturday and a banquet Saturday evening.

Membership in the society is extended to any beekeeper who registers for meetings or whose local Bee Club is affiliated with the society. While the bulk of the members are from the northeastern states, there are no geographical restrictions on membership. Past meetings have been enjoyed by beekeepers from Florida to Ontario. —Roger A. Morse, and Walter Morrison, Publicity Committee.

MASSACHUSETTS
Middlesex County Beekeepers' Assn.
Weston 93, Mass.
May 21, 1960

The first 1960 outdoor meeting of the Middlesex County Beekeepers' Association will be held on Saturday, May 21, on the estate of Mrs. Stephen S. Fitzgerald, 2 Newton Street, Weston, at 2 P.M.

Members will look through the hives of Mrs. Fitzgerald's apiary and the club hive will be inspected to see how it has progressed since the April meeting when it was installed.

A business meeting will be held before the picnic supper. A charcoal grill will be available for those who wish to cook.—M. Southwick, Corres. Sec.

PENNSYLVANIA
Lehigh Valley Beekeepers' Association
Bethlehem, Pa.
April 6, 1960

A joint banquet of our Bee Association and the Fruit Growers of Lehigh County, Pennsylvania was held at the Schnecksville Grange Hall, Wednesday, April 6, 1960. A ham and turkey meal was served and the Master of Ceremonies was Art. McCracken of the Bethlehem Globe Times Radio Station. Entertainment was by five young ladies from thee Henry Johns Music Center, Allentown, Pa. (accordion music). Guests were the county agents and their wives from the two adjoining counties, Lehigh and Northampton. (Glenn Ellenberger and Sam Lewis respectively.)

This was the third annual affair and is our way of furthering the mutual business interests of fruit growers and beekeepers, and also of showing our appreciation for the willing cooperation of the county agents. No speeches by anybody—just a good meal and entertainment. — Alfred Beswick, Sec.

KANSAS
Northeastern Kansas Beekeepers' Assn.
Kansas City, Kansas
May 1, 1960

The May meeting of the Northeastern Kansas Beekeepers' Association will be held 2:30 P.M., Sunday May 1st, in the Wyandotte County Court House, 7th & Ann Streets, Kansas City, Kan. Election of officers will be followed by a dramatization of "The Story of the Honey Bee", and a talk on the "Importance of Labels and Their Contents". You, and all interested in bees and their services are cordially invited to attend the meeting of what we believe is now the largest beekeepers' association in this general area.—R. F. Ferguson, Sec.

OHIO
State Beekeepers' Association
Salem, Ohio
July 30-31, 1960

The summer meeting of the Ohio State Beekeepers' Association will be held in Salem, Ohio, July 30-31. The program will be announced in a future issue of Gleanings.

"Don't try to keep up with the 'Joneses'; they may be going the wrong way."

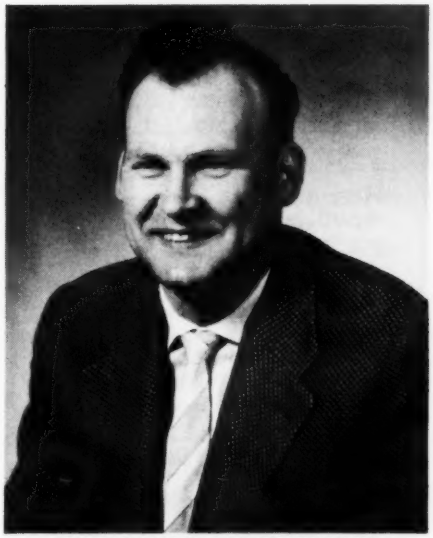
From March 1957 B Notes.

Institute for Beekeeping, Univ. of Bonn
Bonn, Germany

Dr. Wilhelm Drescher of the Institute for Beekeeping, University of Bonn, Bonn, Germany is currently spending a year and a half in the United States under the sponsorship of the Deutschen Forschungsgemeinschaft. He arrived at Iowa State University in Ames in the spring of 1959 and will stay until late summer of 1960. He is accompanied by his wife, Dr. Angela Drescher.

Dr. Drescher's purpose is to become familiar with modern genetic concepts and to conduct research on honeybee genetics in collaboration with Dr. Walter C. Rothenbuhler and associates. While working in Bonn with Professor G. Goetze, Drescher had used the technique of artificial insemination for certain studies on genetics of honeybees. In America, he is continuing to use this technique for experiments involving the special genetic stocks available at Ames to study gynandromorphism and developmental genetics in bees.

The Dreschers hope to travel more extensively in this country and visit a number of laboratories of apiculture and genetics before returning to Germany.



DR. WILHELM DRESCHER

Obituary

WM. J. KNIGHTLEY

WILLIAM J. KNIGHTLEY of Roslin, Ontario, died suddenly at his residence, February 27. He was in his 71st year. Born in England he had lived most of his life in the Ottawa area and moved to Roslin 11 years ago. He is survived by his wife, the former Minnie B. Kerr, who has written articles for Gleanings, a daughter, Mrs. Jack Maher of North Battleford, Saskatchewan, a step-daughter, Mrs. Clayton Sullivan, Corbyville, Ontario, and two grandsons.

The time is drawing near:

Have you made your decision regarding the number and time you want

PACKAGE BEES

Place that order now.

With Reg. Qn.	1-24	25-99	100 up
2 lb. bees	$4.50	$4.25	$4.00 ea.
3 lb. bees	5.70	5.45	5.20 ea.

For Island Hybrid add 30¢ each to above.

Queens clipped unless otherwise ordered. Marking queens 10¢ each extra.

"They Produce"

Rossman Apiaries

P.O.Box 133 Moultrie, Ga.

Phone: YUkon 5-6660

The Australasian Beekeeper

The senior beekeeping journal of the Southern hemisphere provides a complete cover of all beekeeping topics in one of the world's largest honey producing countries. Published monthly by Pender Bros. Pty Ltd. Box 20, P. O., Maitland, 3N, N.S.W., Australia. Subscription by Bank Draft or International M.O. Australia and New Zealand 16/-per annum (in advance) post paid. British Isles and British Dominions 20/-per annum (in advance) post paid. Other overseas countries 23/- per annum (in advance) post paid. Sample copy free on request.

BEES AND QUEENS

FOR PROFIT OR PLEASURE

Ours will please you. Let us prove it with our large yellow 3-Banded Italians. Full weight, safe arrival, health certificate. In U.S.A. and Canada.

— PRICES —	1-11	12-100
2 lb. pkg. w/q	$4.00	$3.75
3 lb. pkg. w/q	5.00	4.75
Untested queens	1.10	1.00
Tested queens	2.00	1.75

Pkg. Bees F.O.B. Shipping Point

NORMAN BROS. APIARIES

RAMER, ALABAMA

WILLIAMS ITALIAN QUEENS

LARGE LEATHER COLORED THREE-BANDED

QUALITY SUPREME

CERTIFICATE WITH EACH SHIPMENT

1-9 Air Mail	$1.25 each
10-99 Air Mail	1.15 each
100 Up Air Mail	1.05 each

Queens clipped, 10¢ each, additional

PACKAGE BEES

	1-9	10 & up
2-lb. w/q	$3.80	$3.60
3-lb. w/q	4.80	4.60

Packages F.O.B. Shipping Point

DR. WILLIAMS APIARIES

115 W. Sterling Ave. Baytown, Texas

NUCLEI MADE TO ORDER

4 frames with plenty of bees and young queen. $5.00 in your equipment. PACKAGES and CAUCASIAN QUEENS.

DELMAR L. SMITH

1954 Scenic Ave. Central Point, Oregon

A Lifetime Among the Bees.

Palmetto Quality Queens

THREE BAND ITALIANS ONLY

$1.00 each Any Quantity

Prompt personal attention. Prepaid Airmail Delivery.

DIXIE HONEY CO.

205 Oak Drive Belton, S. C.

ITALIAN QUEENS

1-24	$1.10
25 up	1.00

until June 15

DAN W. ALVIES

670 Roe Road Paradise, Calif.

3-Band Italian Bees & Queens

	1-10	11-25	26 up
2-lb. pkg. & qn.	$4.50	$4.25	$4.00
3-lb. pkg. & qn.	5.70	5.45	5.20
4-lb. pkg. & qn.	6.90	6.65	6.40
5-lb. pkg. & qn.	8.10	7.85	7.60
Queens	1.45	1.35	1.25

PIEDMONT APIARIES

2624 S. RIDGE AVE. CONCORD, N. C.

CANADA'S

National Monthly Magazine for Beekeepers

Canadian Bee Journal

Streetsville, Ontario, Canada

SUPERSEDURE AND SWARMING

(Continued from page 269)

swarming is not related to the attainment of the maximum colony strength or the decline in the brood to nurse bees ratio below some critical level.

Recently Butler (1958) suggested that the availability and possibly the requirement for the queen substance by the members of the colony play an important part in the tendency of a colony to swarm. However, this is not the only factor. Many beekeepers know that if the colony is prevented from swarming the queen may be kept in the colony for several years, though preparation for swarming may occur every spring. Butler suggests that "all three factors: 1) the amount of queen substance produced, 2) the maximum size of the colony, and 3) the amount of the queen substance each bee needs may, very possibly, vary according to the time of the year, the weather, or the availability of forage, and this determines not only the limits of swarming season, but also the frequency of swarming in any particular season or apiary site".

This writer is of the opinion that probably both the internal and the external factors confronting the colony, coupled with the hereditary and the physiological make-up of its members, play an important part in swarming preparations.

The need for further research is obvious.

SELECTED BIBLIOGRAPHY

Allen, M. D. 1958. "The behavior of honeybees prpearing to swarm", Brit. Jour. Animal Behavior. 4 (1) : 14-22.

Butler, C. G. 1958. "Queen Supersedure and Swarming", Publ. by Central Assn. of Beekeepers, England. pp. 12.

Demuth, Geo. 1921. "Swarm Control", Farmer's Bull. No. 1198. pp. 28.

Farrar, C. L. 1948. "Nosema losses in package bees as related to queen supersedure and honey yields." Gleanings in Bee Culture 76: 72-75, 119.

Lindauer, M. 1957. "Communication in swarm bees searching for new home." Nature, London. 179: 63-66.

Meyer, W. 1956. "Arbeitsteilung im Bienenschwarm." Insects Sociaux 3 (2) : 303-324.

Simpson, J. 1958 "The factors which cause colonies of **Apis mellifera** to swarm." Insects Sociaux 5 (1) : 77-95.

Simpson, J. 1959. "Variations in the incidence of swarming among colonies of **Apis mellifera** throughout the summer." Insects Sociaux 6 (1) : 85-99.

Woods, E. F. 1959. "Electronic prediction of swarming in bees." Nature 184 : 842-844.

J. E. WING & SONS
48 Years Continuous Service
Italian Package Bees and Queens
Our Specialty
Knights Landing, Calif.

J. L. O'FERRELL & SONS
Producers of Queens, Package Bees & Honey
Dadants Midnite Hybrids
Carniolan & Caucasians
409 O'Ferrell Street
LA BELLE, FLA. GREENSBORO, N. C.
PURE FRESH ROYAL JELLY

PACKAGES WITH MIDNITE QUEENS

Quantity	1-24	25-99	100 up
2 lb.	$4.80	$4.55	$4.30
3 lb.	6.00	5.75	5.50
4 lb.	7.20	6.95	6.70
EXTRA MIDNITE QUEENS	$1.75	$1.65	$1.55

PACKAGES WITH CARNIOLAN & CAUCASIAN QUEENS

Quantity	1-24	25-99	100 up
2 lb.	$4.50	$4.25	$4.00
3 lb.	5.70	5.45	5.20
4 lb.	6.90	6.65	6.40
EXTRA CARNIOLAN & CAUCASIAN QUEENS	$1.45	$1.35	$1.25

All tested queens, $2.50.
Clipped and Marked Queens, 10¢ each, extra

BRITISH BEE JOURNAL
The Only FORTNIGHTLY Bee Journal in the World
Subscription price £1.1.0 per annum, post free, six months 11/6d. post free and three months 6/3d. post free.
Keep up to Date in Beekeeping by taking out a subscription now through our agents:
Gleanings in Bee Culture
Medina, Ohio

HOMAN'S
QUALITY BRED CAUCASIAN or ITALIAN BEES & QUEENS

2-lb. w/q	$3.75
3-lb. w/q	4.75
4-lb. w/q	5.75
5-lb. w/q	6.75
QUEENS	1.15

All queens postpaid airmail. Health certificate and live arrival guaranteed.

HOLDER HOMAN
Ph: PO 7-3880 Shannon, Miss.

Buy and Sell

Classified rates: 18¢ per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it) count as one word. Copy should be in by the 10th of the month, preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. HUBBARD APIARIES, ONSTED, MICHIGAN.

IOWA honey, one can or truck loads. RUSSELL D. SMALLEY, BEAVER, IOWA.

CLOVER extracted honey in sixties. ABRAM BRUBAKER, 1525 September Dr., LANCASTER, PA.

TUPELO, wild flower in 60's. Honey candy. LANCASTER COUNTY DUTCH GOLD APIARIES, 910 State Street, LANCASTER, PA.

HONEY—In any size container, also Mail Order Dealer for Bee Supplies. Write for prices. L. E. ALLEN, TIPTON, MICH.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We cannot guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

WANTED—All grades of extracted honey. Send sample and price. DEER CREEK HONEY FARMS, LONDON, OHIO.

CASH FOR BEESWAX. Write as to quantity and we will quote price. MUENCH-KREUZER CANDLE CO., INC., SYRACUSE, N. Y.

WANTED—White extracted or comb honey. Send sample. MILLERSPORT HONEY CO., MILLERSPORT, OHIO.

BEESWAX WANTED—Highest prices paid in cash or trade for bee supplies. THE A. I. ROOT COMPANY, MEDINA, OHIO; COUNCIL BLUFFS, IOWA; SAN ANTONIO, TEXAS.

WRITE FOR SHIPPING TAGS and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. WALTER T. KELLEY CO., CLARKSON, KY.

WANTED — Light amber clover, fall flowers, buckwheat and white clover. Send sample and lowest price. CLOVERDALE HONEY CO., FREDONIA, N. Y.

WANTED—Buckwheat and light amber honey. EASTERN FOOD PRODUCTS, 421 BEDFORD AVE., BROOKLYN, N. Y.

HONEY WANTED for bottling, all types in drums, tins, trailer and car lots. Send samples each lot. Write: CHAS E. FARRIS CO., 99 Hudson Street, NEW YORK CITY. Est. since 1910.

WANTED—Honey in 60 pound cans, also beeswax any quantity. L. E. ALLEN, TIPTON, MICH.

ALL GRADES extracted honey wanted in both 60 pound cans and 600 pound drums. PRAIRIE VIEW HONEY CO., 12303 12th St., DETROIT 6, MICHIGAN.

WANTED—White and Extra Light Amber Honey, 60 pound Cans or Drums. HUBBARD APIARIES, ONSTED, MICHIGAN.

WANTED, chunk comb and extracted honey. Mail sample and price. STOLLER HONEY FARMS, LATTY, OHIO.

We render cappings, old combs and buy your beeswax. Shipping tags sent on request.—M. R. CARY CORP., GPO Box 818, SYRACUSE 1, N. Y.

WANTED: Honey—water-white, light amber and buckwheat extracted and comb. Send samples and prices. M. R. CARY CORP., GPO Box 818, SYRACUSE 1, NEW YORK.

WANTED—Chunk and extracted honey. Send sample and price. RONALD CULP, CIRCLEVILLE, OHIO.

WANTED—Producers of light clover honey to super chunk comb frames for us, 1960. Write: MAYHEW HONEY FARMS, CLARKSON, KY.

FOR SALE

WRITE FOR CATALOG—Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. HUBBARD APIARIES, Manufacturers of Beekeepers' Supplies and Comb Foundation, ONSTED, MICHIGAN.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

QUEENBEE PAINTING OUTFITS, $1.50. INTERLOOKERS, $3.00 postpaid. SOUTHWICK APIARIES, WABAN, MASS.

FREE CATALOG—Cypress bee hives and bee supplies. Save up to 40% on hives that last. MYERS CRAFT MANUFACTURING CO., BURGAW, NORTH CAROLINA.

BEST WHITE GRANULATED SUGAR BY THE BAG or truckload. Good stock at all times for Bee Feed. HUBBARD APIARIES, ONSTED, MICHIGAN.

SULFA—TM-5 — TM-25 — for AFB and EFB. Ask for our low bulk prices. HUBBARD APIARIES, ONSTED, MICHIGAN.

$ $ $ $ $ FRAMES & SUPERS — Factory prices. Frames 9 1/8, 1-100, 12¢; 100-1000, 10¢; 1000 or more, 8¢. Supers, 9 5/8 depth, 1-12, $1.35; 25-100, $1.25; 100-1000, $1.15. Write for free catalog. KEHM BROTHERS APIARIES, Box 346, Rt. 1, GRAND ISLAND, NEBRASKA. Located 2 miles North of Drive-Inn Theater.

FOR SALE—Complete, modern, up-to-date, fully equipped bee business. 700 colonies. 40 by 80 two story honey house. Three bedroom modern home. Retiring. J. D. HARRAH, CHARLO, MONT.

WESTERN PINE BEE SUPPLIES, frames and supers. Cedar tops and bottoms. Let us bid on your lumber needs. Truck load lots a specialty. A lifetime among the bees. MOUNTAIN BLOSSOM HONEY FARM, 1954 Scenic Ave., CENTRAL POINT, OREGON.

NEW CYPRESS BEE WARE—9⅝ supers, $1.05; 6⅝ supers, 70¢; 5¾ supers, bottoms, or covers, 60¢; telescope cover (without metal), 75¢. C. L. STONECYPHER, HOMERVILLE, GA.

500 2-story 8-frame hives, built new in 1959. No down payment to responsible party. NAIL BROS., GRANGEVILLE, IDAHO.

USED BEE EQUIPMENT—Thoroughly sterilized and clean. Inspection certificate furnished. C. L. McCLAIN, R. 3, PINCONNING, MICH.

THIRTY COLONIES, 10-frame, $300.00, 65 deep supers, $80.00, 65 shallow, empty, $50.00; 58 colonies, 8-frame, $580.00, 235 deep supers, $495.00; two 100 gallon tanks, $40.00; 10-frame excluders, 50¢; locations. E. L. GAMBLE, ADAMS, NEW YORK.

58 STANDS, two stories. Extra comb for three stories. 400 clean frames. Miscellaneous good equipment. TOM NAYLOR, R. 1, Box 422, SANTEE, CALIF.

300-400 shallow 5⅜" supers with frames, $1.00. Sterilized and repainted. HENRY FASE and SON, 7687 Fase St., ADA MICH.

MY LAST FEW BOOKS, "Honey in the Comb," have been purchased by Gleanings in Bee Culture and The American Bee Journal. If you want a copy order direct from them. CARL E. KILLION, PARIS, ILLINOIS.

COMPLETE STOCK OF HONEY CONTAINERS: Glass Jars, 5-lb. and 10-lb. Tin Pails, 5-gal. 3" opening honey containers, new and used drums. HUBBARD APIARIES, ONSTED, MICH.

ASK ABOUT OUR FINANCE PLAN. Quality supplies at factory prices. HUBBARD APIARIES, ONSTED, MICH.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

CARNIOLAN and CAUCASIAN Bees for 1960. Booking queens. Each, $1.00; 2-pound bees with queen, $4.00. 3-pound bees with queen, $5.00. LEWIS & TILLERY BEE CO., RT. 3, BOX 251, DU 2-8371, GREENVILLE, ALABAMA.

WALKER'S high producing Italians, 3-lb. with queen, $5.25; 2-lb., $4.25, extra queens, $1.35. Discount on large orders and truck loads. A so comb nuclei. G. C. WALKER, Box 894, PHARR, TEXAS.

BOOSTER BEES—70 cents pound in your cages after May 15. Can supply new cages and queens. A V. DOWLING, North St., VALDOSTA, GA.

PACKAGE BEES, QUEENS—Best Quality and Service. Write for prices. HUBBARD APIARIES, ONSTED, MICHIGAN.

DADANT STARLINE HYBRIDS—QUALITY QUEENS and PACKAGE BEES. Queens, $1.70 each, Air-mailed. 2-lbs. bees with queen, $4.95, ship. wt. 6 lbs. 3-lbs. and queen, $5.70, wt. 7 lbs. Add postage if by mail. Express collect. For Italian queens deduct 45¢ per queen. Quantity prices on request. Book early without deposit. Shipments begin April 1st. Full weight, live bees, at destination, personal service. Health certificate. Queens clipped and marked if desired, 10¢. S. J. HEAD, CROSSETT, ARKANSAS. WHERE YOUR BUSINESS IS APPRECIATED.

QUALITY ITALIAN QUEEN BEES — Until June 1st. Each, $1.25; 5 or more, $1.20 each; 25 or more, $1.15 each. Write for package bee prices. A. G. WOODMAN CO., GRAND RAPIDS, MICH., or LENA, S. C.

HONEY LABELS

Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

"SWARMING STOPPED COLD"

95% Foolproof

No Gimmicks
No Gadgets
No Tricks

Bigger Crops - Better Beekeeping
Full Directions Price $1.00

BAKER'S APIARIES

Glencoe Illinois

QUEENS

$1.00 each

Any Number

By Return Mail

Bright 3-Band Italian Bees and queens of highest quality. Purely mated. Full weight packages. Safe arrival and satisfaction. Health Certificate furnished.

	1-24	25-up
2-lb. pkgs. w/q	$3.75	$3.50
3-lb. pkgs. w/q	4.75	4.50
4-lb. pkgs. w/q	5.75	5.50
Untested Queens		$1.00
Tested Queens		2.00

Packages shipped F.O.B. Express or Parcel Post Postage Collect.

JOHN A. NORMAN

Route One Grady, Ala.

Hollopeter's Italian Queens

Result of 50 years breeding Northern stock in the North, and are Hardy, Healthy, Hustlers. June to November.

No packages. Queens only.

1-10, $1.25 11-25, $1.15 26-50, $1.00
51 and up, 90¢ each.

WHITE PINE BEE FARMS

ROCKTON, PA.

BRIGHT ITALIANS — 3 lb. w/q, $5.00; 2 lb. w/q, $4.50, F.O.B. Aberdeen; Queens, $1.50. SHEPPARD APIARIES, ABERDEEN, N. C.

IF YOU WANT some good productive bees, try our Starline Queens and Packaged Bees. WICHT APIARIES, 406 Miller St., HATTIESBURG, MISS.

CAUCASIAN QUEENS, $1.25 each. Extra good producers and gentle to handle. C. D. WARDELL & CO., Box 6226, PALESTINE, TEXAS.

FOR SALE—Bees. State inspected. 228 Prospect, WELLINGTON, OHIO.

WILL HAVE SOME four frame nucs from Florida for sale. JOHN SEITZ, CANASTOTA, N. Y.

ITALIAN and CARNIOLAN BEES. 3 pounds, $5.00, 5 pounds, $6.90. Queens, $1.30. LUTHER PICKETT, EFLAND, N. C.

ROYAL JELLY

ROYAL JELLY—$12.00 per ounce, postpaid. Write for prices in large lots. THE STOVER APIARIES, MAYHEW, MISS.

SUPER STRENGTH 100 mg. Royal Jelly capsules in bottles of 100 for $10.00. PRAIRIE VIEW HONEY CO., 12303 Twelfth St., DETROIT 6, MICH.

12 pounds ROYAL JELLY at $10.00 per ounce. GARON BEE COMPANY, DONALDSONVILLE, LA.

MISCELLANEOUS

BEES REMOVED from house or tree or hive without touching either house or bees. Bees will then move honey into hive. Save property, honey, and bees with my method. Send $2.00 for details. Satisfaction guaranteed. GEORGE HAWKINS, RT. 1, LAWSON, MO.

APPLY BEESTROY in your locality. Charge for services. Block infiltration of wild bees and EFB into your own stock. Dealer price, $18.00 per dozen from VALLEY APIARIES, Rt. 2, Box 23, PROPHETSTOWN, ILLINOIS.

NEED SUPERS with comb. Write REED BITTERS, Box 120, LOGAN, UTAH.

WANTED

WANTED—Experienced bee man, after proven ability, possible share or lease basis. J. C. HOLT, 915 Winslow, RICHLAND, WASHINGTON.

SEEDS

HONEY PLANTS our specialty. Catalog on request. PELLETT GARDENS, ATLANTIC, IOWA.

HELP WANTED

ATTRACTIVE OPENING for shipping clerk—bee supply salesman in New York City. Box 30, Gleanings in Bee Culture.

WANTED—2 men to work in our apiaries. Five day work week. Bonus. Other advantages. SCHULTZ HONEY FARMS, RIPON, WISCONSIN.

MARRIED MAN interested in producing comb and extracted honey to operate and manage a private apiary of 130 colonies in mid-west. Will consider expanding operations for right couple. Percentage of crop plus salary. Must be reliable, honest and no bad habits. Write WM. R. KOENIG, 641 West Stephenson Street, FREEPORT, ILLINOIS.

MAGAZINES

THE SCOTTISH BEEKEEPER (The official organ of the Scottish Beekeepers' Association.) Scottish in character, international in appeal. Annual subscription $2 post free. Sample copy from ROBERT N. H. SKILLING, F.S.C.T., 87 KING STREET, KILMARNOCK, AYSHIRE.

Archiv fur Bienkunde, International journal for Bee Culture and beekeeping economics. Founded in the fall of 1918. Oldest economic bee journal in the world. Praised again and again for its decades of independent leadership through many endorsements and advice as a valuable source also for the practice. Classic. Yearly DM 5.50. Any aspiring beekeeping friend will receive a sample copy. BIENEN VERLAG, GIELBELBACHSTR. 19, LINDAU (B) GERMANY.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription, $3.00. BOX 189, SAN ANGELO, TEXAS.

BEE WORLD, the international journal of the Bee Research Association published monthly, contains the latest research reports on bees and beekeeping. With Apicultural Abstracts it costs $5.50 per annum, or $6.00 including membership of the Bee Research Association. Apicultural Abstracts only $4.50 per annum from the Hon. Subscription Secretary, Bee Research Association, 10 BARNETT WOOD LANE, ASHTEAD, SURREY, ENGLAND.

PROFIT AND HEALTH—Raise dairy goats. Learn how. Monthly magazine, $2 yearly; sample and information 25¢. DAIRY GOAT JOURNAL, COLUMBIA T3, MISSOURI.

INDIAN BEE JOURNAL, know interesting facts concerning the honeybees of India. The only Bee Journal of India published in English. Subscription Rs. 12/- or Sh. 17/6d (Sterling) or $2.75 per year (INTERNATIONAL M.O.). Sample copy 2s. or 25 cents. Can be had from: The Managing Editor, Indian Bee Journal, Naini Tal, U.P., India.

Weight of a Gallon of Honey

Q. How much honey should a gallon container hold?—H. S., Penna.

A. The weight of a gallon of honey depends somewhat on the moisture content of the honey. Heavy bodied honey with a moisture content of only 15 per cent or 16 per cent will weigh almost 12 pounds to the gallon. However, honey with a larger water content will weigh less than 12 pounds to the gallon. At present the United States standards for grades of extracted honey require that honey shall be well ripened and shall weigh not less than 11 pounds and 12 ounces per gallon, also that honey shall not contain more than 18.6 per cent moisture. As a matter of fact, honey with an 18.6 per cent moisture or water content will weigh 11 pounds and 12 ounces to the gallon.

CYCLONE WIPES OUT BEE YARD

A terrible cyclone visited the Island of Mauritius (located in the Indian Ocean off East Africa) on February 28, 1960. My house was blown down. I lost everything including my apiary of 25 hives, all gone with the wind, blowing at 200 miles per hour. I will never forget this day until I die. I had to run for my life, taking shelter in my poultry house. I will have a concrete house built strongly against hurricanes. — L. O'Connor.

MONTHLY HONEY REPORT

(Continued from page 261)

Reporters indicate that moisture conditions around the country are generally good. The southwest improved greatly by some recent rains. Winter losses vary from two to twenty-five per cent depending on the location. The winter in the north has been generally severe and recent flood conditions in the central states have destroyed many colonies. Wild flowers look good in California and the outlook is bright for a sage flow. Pollen substitutes will probably be used extensively in some areas because of the late spring.

Keep Gleanings Coming

PACKAGE BEES ITALIAN QUEENS

Good Producers — Gentle
You will like them. Good service.
A. R. BANTA Los Molinos, Calif.

Leather Italian Queens

The strain that has gained world wide approval for almost half a century.

Price $1.00 each or $90.00 per 100, Air Mail

Due to increasing demands for queens we have discontinued the sale of package bees which enables us to give your queen orders our personal attention. We are prepared to make prompt shipments on your requirements even your unexpected ones. Apiaries accredited and certified by the Alabama State Dept. of Agriculture.

O. K. Anderson & Son

Box 516 Coffee Springs, Alabama U. S. A.

Shoot for profit - - - - Shoot for the STAR

Order STARLINE queens this season and profit.

PACKAGE	BEES 2 lb.	WITH QUEENS 3 lb.	4 lb.	QUEENS Starline	Italian
1-24	$4.50	$5.70	$6.70	$1.70	$1.40
25-99	4.25	5.45	6.45	1.60	1.30
100-Up	4.00	5.20	6.20	1.50	1.20

Packages with Starline queens, add 30¢ per package.
Clipping 5¢ each queen, marking 5¢ each queen.
Reg. U. S. Pat. Off.
Cold Temperature Has **NOT** Affected Our Productions
ALL QUEEN ORDERS SHIPPED POSTAGE PREPAID TO YOU.
GARON BEE COMPANY DONALDSONVILLE, LA.

CAUCASIAN QUEENS AND PACKAGES 1960 PRICES

Gentle, Industrious Caucasian bees and queens. Bred for greater honey production, gentleness, highly prolific, no excessive propolis, swarm control. Tested Queens, $2.50 each.

2 Lb. Pkg. Bees with young queen — $4.25 each
3 Lb. Pkg. Bees with young queen — 5.25 each
Extra Queens Any Amount — — — 1.25 each

A Certificate of Health and Live Delivery Guaranteed. We are prepared to fill all orders promptly. Come after your bees or have them shipped Express or Parcel Post. Send $1.00 per package deposit with order. Balance two weeks prior to shipping date. Queens clipped or marked 15¢ additional. For Parcel Post shipments add for 2 pounds, $1.30 and $1.50 for 3 pounds. Send us your order for 1 or 1,000. Try US.

CAUCASIAN APIARIES
P.O. Box 87 Buckatunna, Mississippi

PLANT'S BEES

Year after year dependability quality service.

	1 to 9	10 to 50	51 up
2-lb. pkg. with queen	$4.50	$4.25	$4.00
3-lb. pkg. with queen	5.70	5.45	5.20
Queens	1.45	1.35	1.25

Larger packages at $1.20 per each additional pound. No charge to clip, mark, airmail queens.

W. E. PLANT Rt. 2 Hattiesburg, Miss.

"1960 California Caucasians"

Gentle and industrious Caucasian queens. Hastings strain used for breeders. Bred for greater honey production. Gentleness, highly prolific. No excessive propolis. Swarm control and color. 10% books your order — balance two weeks prior to shipment. Air Mail. We do not clip or mark.

1 to 24 ..... $1.50 25 to 99 ..... $1.35 100 & up $1.25

After June 1st

1 to 24 ..... $1.30 25 to 99 ..... $1.15 100 & up $1.00

QUALITY AND SERVICE DOESN'T COST — IT PAYS

DON J. STRACHAN Yuba City, Calif.

Rt. 2, Box 83 Phone Sherwood 23881

COOKY RAIDS AHEAD

(Continued from page 293)

browned. Yield: 4 dozen cookies, about 2 inches in diameter.

Honey Chocolate Bars

Two cups (12 oz.) semi-sweet chocolate pieces, ⅔ cup honey, 5 cups rice cereal.

Melt chocolate over hot but not boiling water; stir in honey. Remove from heat. Add rice cereal, mixing thoroughly. Press into buttered 15 x 10-inch pan. Let harden. Cut into bars. Yield: 56 bars, about 2¼ x 1¼ inches.

Honey Ginger Creams

One-fourth cup shortening, ½ cup sugar, 1 egg, ½ cup honey, ½ cup water, 2 cups sifted flour, ½ teaspoon soda, ½ teaspoon salt, 1 teaspoon ginger, ½ teaspoon cloves, ½ teaspoon nutmeg and ½ teaspoon cinnamon.

Blend well shortening, sugar, egg and honey. Stir in water; blend. Sift together and add dry ingredients. Chill dough. Drop rounded teaspoonfuls about 2 inches apart on greased baking sheets. Bake until set, about 8 minutes, in a moderately hot oven. While slightly warm frost with creamy confectioners' sugar icing.

RESEARCH REVIEW

(Continued from page 285)

about 84 percent are Italian. Thus the imports of bees have increased considerably recently. In addition to these China has about a million colonies of native bees (Apis but not a satisfactory race) but these are difficult to manage and they are not too satisfactory. China plans to increase its imports of bees rapidly each year and hopes to reach a total of two million colonies by the end of its second five-year plan which expires in 1962.

In addition to the value of the honey and beeswax produced, there has been a small amount of beekeeping research in China which shows that bees are valuable for pollination there as well as elsewhere in the world. Seed increases from rape, sunflower, buckwheat, and fruit have been reported. Cotton yields have been increased five to twelve percent by the use of bees.

Other than the small amount of research above, little research is being undertaken in China today. One of the Chinese authors hopes that Russian specialists will help them considerably. A note is added at the end of this article that a Beekeeping Research Institute has been recently established at Pekin. It appears that there is at least one Chinese Beekeeping Journal and it has been received regularly for sometime by the Bee Research Association Library in England.

Crane, Eva
Beekeeping in the People's Republic of China. Bee World 41:4-8. 1960.

Beeswax Rendering Service
Exchange Your Beeswax
for Foundation
Write for Price List.
WAX WORKERS, INC.
1330 Slaterville Rd. Ithaca, N. Y.

N O R M A N ' S
IMPROVED 3-BAND ITALIAN BEES & QUEENS

2-lb. pkg. w/q	3-lb. pkg. w/q	4-lb. pkg. w/q	Queens
$3.75	$4.75	$5.75	$1.00

TESTED QUEENS $2.00
Full weight, safe arrival guaranteed, with health certificate furnished.
Packages shipped F.O.B. Express or via Parcel Post collect.
NORMAN BEE CO. Rt. 1 RAMER, ALA.

HARPER'S FAMOUS
HIGH QUALITY ITALIAN
QUEENS & PACKAGE BEES
For 1960

	Queens	2 lb. w/q	3-lb. w/q
1-29	$1.25	$4.00	$5.00
30 & Up	1.15	3.75	4.75

All Queens Postpaid, Airmail. Health Certificate and Live Arrival Guaranteed.
Please let us have your requirements early.
CARLUS T. HARPER
New Brockton, Alabama

PACKAGE BEES — QUEENS
CAUCASIANS—MIDNITES—ITALIANS
We do our best to serve you with the best.
QUEENS

1 to 24	$1.50 each
25 to 99	1.40 each
100 up	1.30 each

Add 25¢ each for Midnite queens.
PACKAGE BEES

	2-lbs.w/q	3-lbs. w/q
1 to 24	$4.40 each	$5.60
25 to 99	4.20 each	5.30
100 up	4.00 each	5.10

Add 25¢ per pkg. for Midnite Queens
No charge for clipping and marking.
Write for prices on truckloads with exchange of cages.
THE COFFEY APIARIES
Whitsett, Texas
Express and telegraph office:
Three Rivers, Tex. Tel.: Campbellton 7-2525

PRICE SUPPORT

(Continued from page 283)

2. Extra light Amber table honey 8.9
3. Light Amber table honey 8.0
4. Other table honey and non-table honey 7.3

Price support rates are higher than last year. If anyone is interested in taking advantage of this program they should contact their county office of the Commodity Stabilization Service.

The complete program is published in the Federal Register Vol. 25, No. 65, Pg. 2785-88, United States Department of Agriculture, Agriculture Marketing Service, Washington 25, D. C.

TALK TO BEEKEEPERS

(Continued from page 302)

major honey flows during June and July. Everything possible should be done to enable the colonies to reach maximum strength. Hives should be checked periodically to detect inferior or failing queens which should be removed and replaced with good queens.

It has been said that a good honey flow usually follows a severe winter with plenty of snow. If that is true we may be due for a good honey season ahead. Time will tell.

QUALITY IN PACKAGE BEES AND QUEENS

Caucasian or Italian, gentle, highly productive. Health certificate, live arrival guaranteed.

Lots of	Queens	2 lb. w/q	3 lb. w/q	4 lb. w/q	5 lb. w/q
1 to 25	$1.50	$4.25	$5.35	$6.45	$7.55
26 to 99	1.35	4.00	5.05	6.10	7.15
100 up	1.20	3.75	4.75	5.75	6.75

FARRIS HOMAN SHANNON, MISS.

CAUTION IN THE USE OF OF CHEMICALS, DRUGS, AND ANTIBIOTICS

(Continued from page 298)

supers for good ventilation in a hot room equipped with an adequate exhaust fan and delay extracting until all odor of carbolic acid has been removed from the hot room.

Calcium Cyanide for Killing Colonies

Do not apply calcium cyanide or any other poison with a dust gun to colonies from which honey is removed for extraction. If you do use cyanide, place it on papers on the bottom board and on top of the hive under the cover, and when removing these papers containing the cyanide residue be careful not to spill any on the combs. It would be safer to remove all supers to be extracted before killing the colonies.

Fumigation of Comb Honey

Place the fumigants in shallow receptacles on top of the supers for evaporation, since the gases are generally heavier than air. **Do not pour or discharge a fumigant directly onto the honey.** Follow all precautions specified for handling a particular fumigant and ventilate the super thoroughly after fumigation.

Extracting Honey from Brood Chambers

The practice of extracting honey from brood chambers, which is used in some areas, will increase the chance of contaminating honey with medicants that have been fed. Under such conditions special caution in use of medicants should be exercised. Well-managed strong colonies with large honey reserves will consume several times as much honey, but they will produce a surplus two to five times greater than small colonies kept on bare subsistence rations. More often, use of brood nests larger than are employed under some systems of management will increase the size of the surplus crop. Thus, it may be false economy to extract honey from the brood chambers to reduce the weight for moving.

The beekeeping industry must accept the responsibility of managing so that honey contamination will not occur. This will necessitate the utmost caution in how, when, and at what concentrations beekeepers use chemicals, drugs, and antibioitics.

When you think of
Bees & Queens

Think of:
Merrill Bee Co.
P. O. Box 115
State Line, Miss.

With normal weather all orders should go out on time as our bees are in good condition.

Our 100% satisfaction has been good for 48 years, let us prove it.

Packages with Queens (Italian only)

2 - lb. pkg.	**$3.75 any number**
3 - lb. pkg.	**4.75 any number**
Untested Queens	**1.10 any number**
Tested Queens	**1.50 any number**
For larger pkgs. add	**1.00 per lb.**

Terms $1.00 per package with orders balance before shipments.

Three Band and Pure Italian Hybrid Package Bees and Queens

We ship pure worker bees by mail, express, or truck. We guarantee live arrival.

1960 PRICES

Each with a Young Laying Queen	2 lb.	3 lb.	4 lb.	5 lb.
1 to 11, Each	$4.25	$5.35	$6.45	$7.55
12 to 29, Each	4.05	5.10	6.15	7.20
30 or More, Each	3.85	4.85	5.85	6.80

	1 to 11	12 to 29	30 or more
Untested Queens,	$1.40	$1.30	$1.20

Tested Queens, $2.00 each.

For Booster Bees, deduct the price of the queen in quantities.

ROYAL JELLY ..... $10.00 Per Ounce

P. O. Box 265 JACKSON APIARIES Funston, Georgia

ITALIAN & CAUCASIAN BEES AND QUEENS 1960 PRICES

Bees that stand test for Honey Gatherers, Gentleness, and very prolific. Bred from select hives, Fumidil fed grafting and queen yards. A certificate of health and live delivery guaranteed. All queens Air Mail. Tested Queens, each, $2.50.

	2 Lb.	3 Lb.	4 Lb.	5 Lb.	Queens
1 - 24	$4.50	$5.50	$6.50	$7.50	$1.45
25 - 99	4.25	5.25	6.25	7.25	1.35
100 - up	4.00	5.00	6.00	7.00	1.25

We are prepared to fill all orders promptly. .Come after your bees or have them shipped Express or Parcel Post. Send $1.00 per package deposit, balance two weeks prior to shipping date. Parcel Post, add for 2 Lb. $1.30; 3 Lb. $1.50. Larger packages add $2.50.

SEND US YOUR ORDER FOR 1 or 1,000 — TRY US.

G. D. McCARY & SON BEE CO. BUCKATUNNA, MISSISSIPPI

A ROLL OF RUBBEROID

(Continued from page 299)

boxes with wire bottoms. These bottoms supply adequate ventilation for transporting. Upon arrival, if the ground is uneven and these wire bottoms would offer invitation to robbers, a small piece of rubberoid is stapled to the bottom of the nuc, giving a cheap and efficient bee-tight bottom.

The roll can be stretched out and stapled or roped over a load of honey, to serve as a temporary truck tarp.

Pieces of this material are often stood up in front of the colony entrances to deter drifting when colonies are moved short distances.

Innumerable times pieces have been used by beekeepers to patch holes in a roof or wadded up under the eaves to keep honey houses bee-tight.

In the days of out-apiary storage sheds or extracting houses, it was called the beekeepers' friend because it was used in so many ways.

One New Jersey beekeeper in the pollination business always carries a small roll in his truck. He says he has used it for many of the above purposes; plus some others, namely: a makeshift rain shedding poncho when he was forced to work out in bad weather, to a hasty insole in his broken shoe. He says: "I wouldn't be without some of the stuff at all times".

And as I use a piece to patch a hole in my windbreak, I think of all the things it can be used for around the bee yard and I echo his sentiments.

BETTER BRED QUEENS

If you failed to get your packages in April, we are making a special price for May bees; after the 10th.
Orders filled as received.

CALVERT APIARIES

Three Banded Italians

2 lb pkgs. w/q ..... $2.95 each
3 lb. pkgs. w/q ..... 3.70 each
Queens ..... .85 each

Phone Valley 9-6183
CALVERT, ALABAMA

PACKAGE BEES - QUEENS

ITALIANS CAUCASIANS

Due to the record breaking cold spring we had here in the South we will be somewhat late on making our April shipments of bees. You can be sure we are doing all we can to get your bees shipped as near on time as we possibly can.
We should have some extra bees in May.

PRICES AFTER MAY 20th

In Lots of	Queens	2-pound	3-pound	4-pound	5-pound
1 - 24	$1.00	$4.00	$5.00	$6.00	$7.00
25-499	.85	3.60	4.40	5.25	6.10

TESTED QUEENS ..... $2.00 each

Queens Postpaid—airmailed—clipped—No extra cost.
10¢ each extra for marking.

THE STOVER APIARIES

Mayhew, Miss.

INCREASE WITH NUCLEI

(Continued from page 281)

strength in eight weeks if conditions are normal. In this section it will not be able to gather much surplus from white clover but it will do well on second crop alfalfa and from fall flower sources. In addition you will have a very good colony to go into the winter season.

This practice will not injure any colony that is sufficiently strong. In fact it helps to prevent swarming tendencies in the very populous colonies. In some instances the removal of the frames with brood for the nuclei can be done when the colonies are given their periodic inspections. In such a case very little extra time or work is needed for the operation. This method of establishing nuclei for colony increase should be desirable to any beekeeper. It involves little extra time and work and just the small cost of a queen makes it very economical.

DADANT STARLINE

QUEENS

After May 5

1-24 ..... $1.45
25 or more 1.35

Queens Prepaid Airmail if Faster.

C. G. Wenner

R. 1, Box 318 Ph. WE 4-4944

Glenn, California

MAY PACKAGES

2-lb. with queen $4.00
3-lb. with queen 5.00

QUEENS

$1.25 each
10 or more, $1.10 each

J. F. McVAY

Jackson Alabama

"Old Reliable" BERRY'S Italian Bees

THE PREFERRED STOCK OF LEADING HONEY PRODUCERS
Oldest Package Shipper South

America's Best Package Bees and Finest Queens. INSURE your honey crop with DEPENDABLE BERRY Bees (90% of our package bees are under 10 days old).
After 64 years of Select Breeding, we have settled on our strain of Italian bees as being unsurpassed by ANY stock, Hybrid or otherwise, in their relation to honey production, disease, and nosema resistance. We have bred repeatedly from MAJOR advertised strains, and abandoned them all as unequal to our "OLD RELIABLE" stock. "OLD RELIABLE" bees assure you that you have bought the best to be found, regardless of price. They are the Standard of the Beekeeping Profession, in leading honey producing areas. We maintain several branches in the Northwestern States that enable us to test our strain from both honey production and climatic standpoints. All this, along with Competent Breeding, assures you that when a better stock is produced, "OLD RELIABLE" will be the name.

PRICE LIST OF OUR QUEEN BEES AND PACKAGES OF BEES WITH YOUNG QUEENS

	Quantity	Queens	2-lb. w/q	3-lb. w/q	4-lb. w/q	5-lb. w/q
Prices through May 20th:	1-24	$1.50	$4.50	$5.60	$6.75	$7.85
	25-99	1.40	4.25	5.35	3.45	7.55
	100-up	1.30	4.00	5.10	6.20	7.30
Prices after May 20th:	1-24	$1.30	$4.00	$5.00	$6.00	$7.00
	25-99	1.20	3.75	4.75	5.75	6.75
	100-up	1.10	3.50	4.50	5.50	6.50

For prices on queenless packages, deduct $1.00 from price of queen; all prices F.O.B. Montgomery, Ala.

Directions telling how to handle and a Certificate of Health accompany all shipments. May we book your order NOW? Deposit of $1.00 per package required for booking. Remainder remittance in full ten days before shipping date.
References: Union Bank & Trust Co., Montgomery, Ala. Any Bee Journal in the United States or Canada. Ask your Extension Agent about us.

M. C. BERRY & SONS

P. O. BOX 684 MONTGOMERY, ALABAMA

"GULF BREEZE"

QUEENS . . . QUEENS QUEENS . . . QUEENS

We are in full production with hundreds of queens already shipped and hundreds ready to go. For QUALITY and SERVICE this is the company to depend on now and in the future. Fifty years of experience is your assurance of know how to serve you best.

PRICES

1-9 . . $1.30 ea. 10 to 49 . . $1.25 ea. 50 up . . $1.20 ea.

Clipping, 5¢ extra and Paint, 5¢ extra. Air Mail for fast delivery.

BESSONET BEE CO. Donaldsonville, La.

CAUCASIAN QUEENS CAUCASIAN

Bred from the best stock available.
30 years experience as a CAUCASIAN shipper.

	1-24	25-99	100-up
QUEENS	$1.45	$1.35	$1.25

For "Midnite" Queens add 30¢ to the above prices.
Queens clipped and marked, 10¢ extra.
Queens air mailed postpaid. Health certificate; live arrival guaranteed. Write for summer prices.

Howard Weaver & Sons Navasota, Texas

Phone TAlbot 5-2836

JENSEN sez —

"There is no substitute for QUALITY in Queens."

"Sure you can buy cheaper ones, but we place emphasis on maintaining our high Standard of Quality. They have stood the 'test of time' in our customers' operations, large and small. Uniform per colony yield of honey, year after year, sells 'em. Might be able to supply a few more packages after May 10th."

QUEEN PRICES

Dadant Starline Hybrids			Magnolia State Itals.		
1-24	25-99	100-up	1-24	25-99	100-up
$1.75	$1.65	$1.55	$1.45	$1.35	$1.25

Clipped & Marked Free. Post-paid, Air Mailed.
Live arrival guaranteed.

Reg. U. S. Pat. Off.

JENSEN'S APIARIES MACON, MISS. U.S.A. Phone 170 J

ITALIAN PACKAGE BEES AND QUEENS

	1-24	25 or more
2 pound package bees with queen	$4.10	$3.75
3 pound package bees with queen	5.00	4.75

PACKAGE BEES F.O.B. RIO OSO, CALIF.

	1-5	6-24	25 & up
MAY & JUNE QUEENS	1.50	1.25	1.00

QUEENS POSTPAID — AIRMAIL IF IT WILL HELP SPEED DELIVERY
10% books your order. Balance 10 days before delivery.
Truck orders a specialty — Write for details.

JOHN S. SHACKELFORD RIO OSO, CALIF.

PHONE: WHEATLAND, CALIF. NEptune 3-2392

Queens

Italians — Caucasians

	1 to 99	100 up
2-lb. pkg. w/q	$3.45	$3.35
3-lb. pkg. w/q	4.45	4.35
Nice large queens	1.00	.95

JUNE QUEENS ..... 75¢

To air mail queens, add 5¢ each queen

Queens clipped and painted, 10¢ each queen.

All queens are personally reared, shipped when you want them, and your order appreciated.

Order 1 or 1000

Mitchell's Apiaries

Bunkie, La.

Be assured of greatest honey crop available by using line-bred young Caucasian or Carniolan laying queens. Bred for gentleness, honey-gathering and reproduction characteristics.

Air Mail	1-49	50-99	100 up
Queens	$1.45	$1.35	$1.25

$2.50 to Foreign Countries

Clipped or marked 10 cents extra.

Safe arrival in U. S. and Canada

No package bees this season.

W. D. REAMS

Box 458 La Belle, Fla.

Booking orders now.
Over 35 years a shipper.
Send for FREE Circulars.

BLUE BONNET APIARIES also HOME of AULT BEE FARMS

Weslaco, Texas

LITTLE'S

ITALIAN QUEENS

1 to 24	$1.45
25 to 99	1.35
100 and Up	1.25

Until June 15

ROYAL JELLY

Bulk & Consules Write for Prices

LITTLE'S APIARIES

Shelbyville, Tennessee

TEXAS CAUCASIAN QUEENS AND PACKAGES

	1-24	25-99	100 up
2-lb. pkg. w/q	$4.50	$4.25	$4.00
3-lb. pkg. w/q	5.60	5.30	5.00
Queens	1.45	1.35	1.25

All queens personally produced by J. E. Hastings and his breeding stock. Bred for non-swarming, very gentle, good honey producers. Health certificate, weight, and live arrival guaranteed.

KANES APIARIES

Route 1, Box 200 Hallettsville, Texas

Quality Service

ITALIAN BEES AND QUEENS

2 lbs. with queen	$3.75
3 lbs. with queen	4.75
Extra queens	1.20

I will try to give satisfactory service and bees.

Raymond McFarling

Rt. 3 TUPELO, MISS.

NORTHERN CALIFORNIA BEES and QUEENS

Spring queens until May 5.

	Italian	Starline
1-10	$1.50	$1.80
10-25	1.35	1.65
25 or more	1.20	1.50

After May 5

less than 25	$1.10	$1.40
25 or more	1.00	1.30

Place your order with us and be assured of top quality queens and prompt, courteous service.

GEO. E. SMITH & SON

Rt. 4, Box 59 Yuba City, Calif.

Phone SHerwood 2-3511

QUALITY BRED ITALIAN QUEENS

BREEDERS SELECTED FROM OUR NORTHERN APIARIES FOR HARDINESS AND HONEY PRODUCTION. AIR MAIL DELIVERY ON ALL QUEENS:

Jan. through May ...$1.25 each

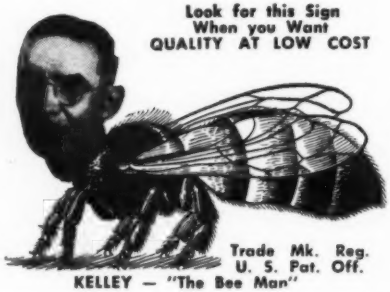
June through Sept. ... .75 each

Write for prices on Package Bees Eby's Permanent Foundation and bee supplies. We are in the market for wax.

Walter D. Leverette Apiaries

R. L. LEVERETTE, MGR.

P.O. Box 364 Ft. Pierce, Florida



KELLEY — "The Bee Man"

KELLEY'S BEES

Improved three-banded Italian bees and queens direct from our own farm. Shipments start April 1st, express or parcel post shipment. Thousands of extra queens.

	Queens	2-lb. w/q	3-lb. w/q
1-24	$1.25	$4.25	$5.25
25-99	1.20	4.00	5.00
100-up	1.15	3.75	4.75

THE WALTER T. KELLEY CO.

Clarkson, Ky.

Index to Display Advertisers

Aeppler Co., C. W. 309
Alamance Bee Co. 263
Alvies, Dan W. 306
American Bee Journal 262
Anderson & Son, O. K. 311
Australian Bee Journal 258
Australasian Beekeeper 336
Baker's Apiaries 309
Banta, A. R. 311
Bee Supply Co. 260, 263
Berry & Sons, M. C. 317
Bessonet Bee Co. 318
Blue Bonnet Apiaries 319
British Bee Journal 307
Burleson & Son, T. W. 258
Calvert Apiaries 316
Canadian Bee Journal 306
Cary Corp., M. R. 258
Caucasian Apiaries 312
Chrysler & Son, W. A. 258
Cobana Prod. Co. 260
Coffey Apiaries 313
Conneaut Can Co. 262
Dadant & Sons, Inc. ..... Inside front cover
Daniels & Co., R. C. ..... Inside back cover
Dixie Honey Co. 306
Garon Bee Co. 312
Harper, Carlus T. 313
Homan, Farris 314
Homan, Holder 307
Hutchison Mfg. Co. 263
Hyland Apiaries, Inc. 259
Jackson Apiaries 315
Jensen's Apiaries 318
Jones & Son, F. W. 259
Kanes Apiaries 319
Kelley Co., Walter T. 264, 320
Leverette Apiaries, Walter D. 319
Little's Apiaries 319
Lotz Co., August 262
McCary & Son Bee Co., G. D. 315
McFarling, Raymond 319
McVay, J. F. 317
Merrill Bee Co. 315
Mitchell's Apiaries 319
Myers Craft Mfg. Co. 263
New Zealand Beekeeper 260
Norman Bee Co. 313
Norman Bros. Apiaries 306
Norman, John A. 309
O'Ferrell & Sons, J. L. 307
Organic Gardening & Farming 262
Piedmont Apiaries 306
Plant, W. E. 312
Prairie View Honey Co. 258
Reams, W. D. 319
Root Co., A. I. ..... Outside back cover
Rossman Apiaries 306
Shackelford, John S. 318
Smith, Delmar L. 306
Smith & Son, Geo. E. 319
Stoller Honey Farms 258
Stover Apiaries 316
Strachan, Don J. 312
Taylor, Stewart 259
Walker-Lee Co. 260
Wally's Bee Enterprise, Inc. 263
Wax Workers, Inc. 313
Weaver & Sons, Howard 318
Wenner, C. G. 317
White Pine Bee Farms 309
Wilbanks Apiaries 260
Williams Apiaries, Dr. 306
Williams Bros. Mfg. Co. 260
Wing & Sons, J. E. 307
Woodman Co., A. G. 259
York Bee Co. 264